

FROOB

ENGINES  
the early days



# FROOB ENGINEER MANUAL

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Aloha!

This is a guide to help newcomers understand the basic concepts involving proper character development. The following tutorial touches on how improvement points, nano programs, implants, ncu belts and chips, utility items and modifier weapons are all interconnected - and by attending to each of the aforementioned categories will ultimately lead to a able and highly satisfactory game character.

## 1.0 Breed aspect

Opifex are the athletes, Nanomage the brainy class, Atrox the brawn, Solitus are a little of everything.

**Nanomage** - The highest intelligence ability of all the breeds, which makes them the best at using nano skills and most trade skills. However, this intelligence is not without cost, since Nanomage is also physically the weakest of all breeds with the least hit points.

Top three Ability advantages:

- Intelligence
- Psychic
- Sense

**Solitus** - The standard breed, doesn't excel at any single ability, yet a highly satisfactory and well rounded engineering selection. If you're concerned with skill balance relative to the effect on implant and armor swapping, then this may be the ideal candidate for you.

No Ability advantages and fewest disadvantages.

**Opifex** - Agility and Sense make this breed slightly better at evades and weapon handling than the others. Opifex also rank highest in mechanical and electrical engineering literacy and sport the lowest total ability cost of all breeds. Opifex are the brassy punks of AO. Be jealous!

Top three ability advantages:

- Agility
- Sense
- Stamina

**Atrox** - The main advantage of the Atrox breed is its incredibly high level of health regeneration. If your play style leads you to the center of the action in groups and raids, then Atrox is the choice for you. Atrox are the least adept at nano skills yet excel at wearing a wide range of high AC armors. Select items introduced to the game help bridge their nano skill deficit.

Top three ability advantages:

- Stamina
- Strength
- Agility

Froob Breed Ability Maxes			
Solitus		Opifex	
Strength	472	Strength	464
Agility	480	Agility	544
Stamina	480	Stamina	480
Intelligence	480	Intelligence	464
Sense	480	Sense	512
Psychic	480	Psychic	448
Nanomage		Atrox	
Strength	464	Strength	512
Agility	464	Agility	480
Stamina	448	Stamina	512
Intelligence	512	Intelligence	400
Sense	480	Sense	400
Psychic	512	Psychic	400
Character Statistics			
All characters over level 190			
Professions			
Adventurer	8.17 %		
Agent	5.58 %		
Bureaucrat	7.41 %		
Doctor	11.94 %		
Enforcer	8.50 %		
Engineer	6.15 %		
Fixer	7.73 %		
Keeper	4.90 %		
Martial Artist	8.00 %		
Meta-Physicist	7.28 %		
Nano-Technician	4.90 %		
Shade	5.00 %		
Soldier	10.63 %		
Trader	3.82 %		
<b>Total</b>	<b>100 %</b>		
Breeds			
Solitus	41.82 %		
Opifex	22.49 %		
Nano	15.36 %		
Atrox	20.33 %		
<b>Total</b>	<b>100 %</b>		

## 1.1. You are born



Please do not chose to join a sided faction yet. Beginner neutral characters enjoy an advantage over omni and clan characters at lower levels of the game. Neutrals can travel through faction cities and outposts with few restrictions which solves many travel problems for those without an air vehicle (Tir clan sentinels will kill neutrals on sight.) There's a second important reason for postponing picking a faction; daily access to the Gauntlet buff regardless of the faction currently controlling it. More on that later.

Configure chat box window channels to view Neutral, Clan and Omni OOC chat and 1-50 shopping channels in a separate window from the combat feedback window. You may now find teams, chat and trade with everyone in your current zone regardless of faction. This is a big help since you can ask for buffs or find answers to questions in Clan and Omni or Neutral designated zones.

If you're about to start the Arete progression series then open the skills window and turn off suggested IP distribution if it's enabled. The Arete map is [here](#). Now jump to section [5.1](#) and read the basic information about skills and abilities. After gaining each new level you'll need to manually distribute Improvement Points to your essential and secondary abilities and skills. Now jump to section [3.1](#) and make hotbar macros so you can properly control your pet.

Complete all of the Arete tasks and missions. The Antonio Strucklund and Arete Island solar pistol upgrades render the original Solar-powered pistol unsuitable for the [Engineer pistol progression](#) series of upgrades - which means prior to leaving Arete one must buy a new, unaltered, solar pistol. All done? It's time to escape Arete and experience the grindy, farmy, incredibly fun game-planet Rubi-Ka.

## 1.2. After Arete

I'll assume you're level 20 and at ICC Andromeda; you've acquired a complete omni-med suit; newcomer armor set; 3 slot belt with low quality ncu chips; a piece or two of Carbonum armor; that you understand a little bit about basic implant construction and have some spending money.

I bet you're thinking "what do I do now?" Well, we start running missions to collect specialized buff [items](#). All of this hoarding of gear may seem excessive, but it's better to get these minor chores done now versus the shocking experience of standing in the Implant Shop and suddenly realizing your stripped down engineer needs two extra points in treatment to wear that shiny new QL35 head implant. Yeah, not fun.

Open the global map and note the whompah or grid terminal connections between ICC and the Omni Trade district and ICC to Old Athens; locate Elliot Fairlane (/waypoint 450, 355, 710) in Omni Trade and Stella Barnes (/waypoint 450, 290, 540) in Old Athens. Each one being responsible to their respective faction for the Gauntlet buff. Knowing the locations of each being important since the gauntlet is a daily task and can rotate ownership on an 18 hour basis. Well? Get the buff! Now open your NCU window and look at the buff modifiers. And for those unaware, the buff scales in power as one levels up!

Find NPC Fia Lou in ICC and complete the "Read Your Mail" task. The reward being three shiny new QL50 NCU chips.

### **1.3. Store shopping and mission farming**

What happens when you can't find things you need in shop terminals? Or find items you want, but the quality levels are wrong? The good news is wares and their quality levels found in vendor terminals change on timers set by the game server - but certain conditions must first be met for this to happen. For example; no one has entered the basic shop in Newland City for 600 seconds. The conditional parameters having been met - the game server now refreshes stock lists found in shop terminals. The server may also refresh individual terminal contents if no one has opened that specific terminal in a preset period of time. That's why we check and recheck the same series of stores in various cities and outposts.

How does one get level 1 missions after leaving Arete at level 20? For that matter, how do we know the mission levels available to our game character?

Simply query an in-game helbot using the line command /tell helbot !level 20. The result will list, among other things, mission levels currently available to your game character.

To get level 1 mission items you'll need to create a new character on a new separate game account. Immediately level lock this new character at level 1 after spawning in the game world. This new character will be responsible for rolling the level 1 mission items on the collection list supplied below.

To automate finding mission reward items we use third party apps; Clicksaver and MishBuddy are third party apps used to automatically sort through missions to find a particular item or type of items based on user inputted search criteria. Both provide an easy to use interface showing the mission locations and reward(s). Note to self: remember to buy mission key duplicators!

#### **1.4. Collecting useful items**

Useful items include things like pistols and armor with ability or skill modifiers. For example; a quality level 1 Second-hand Old English pistol adds +5 intelligence- dual wield them for +10 total intelligence increase. Doing so will slightly increase many skills dependent upon Intelligence. How does that help you right now? Well, you may be able to use a better robotic pet because an increase in Intelligence directly affects nano skills. The very same principal applies to virtually everything in the game. There are literally hundreds of items with ability and skill modifiers - some more useful than others. More on all of that later.

Check basic shop weapons terminals for:

- QL1 Old English buff pistols(2). Find in shop weapon terminals and missions.
- QL1: Aggression Enhancer. Arete task reward, find in shop terminals and missions.
- QL1: The Original Electronicum (2). Check the backyard NPC Secondhand Peddler or in missions.
- QL1: YES Support 1010 (1). Find in missions.
- QL1 and QL40: Tsakachumi PTO-HV Counter-Sniper Rifle(1) each. Find in shops or do missions.
- QL10: Concrete Cushion (2). Find in missions.

- QL22: OT-Windchaser M06 Quartz (1). Find in missions.
- QL22: MTI B-94 +2 experience pistol(2).
- QL30/50: Treatment Library. Check a crafting how-to guide. More on this later.
- QL60: Belt Component Platform 4IX (1). Find in advanced shop terminals or missions.

## **1.5. Money is a problem**

Still have some spending money? If the answer is no, then now is the time to deploy crowd-sourcing skills. 300k-400k credits will be more than enough to complete the early level upgrades we talk about in this guide . . . . . wait a tic, are we talking about begging? Really? Yes, really! Begging is a touchy subject among players and doing so requires tact. Use your best judgment. New players need financial assistance for their first full set of implants. Veteran players can be generous folk. Many of them want to help newcomers succeed, so what the heck, try it!

## 2.0 Basic dungeon gear progression

Low level Engineers are fortunate in not being heavily dependent on rare items dropped only by super hard dungeon bosses. We need rings from minor named foes, Neleb's robe and a few slot items found in the Foreman's dungeon. Nearly all the other things listed here are optional.

### 2.1. Condemned Subway

Watch a video primer on youtube. Do the daily experience tasks and collect gear on the list.

Must collect:

- Ring of the Nucleus Basalis.
- Illegally Modified Ofab Peregrine - Subway version only!
- Morphing Memory.
- Construction Sleeves (2)
- Boots of Infinite Speed. This is a must-have item!

Get help from a willing twink or pay a premium later:

- Jugglers Treat. Very important multi-ranged skill modifier ring.

## Condemned Subway



### 2.2. Temple of Three Winds

Complete the portal pass task from Windcaller Karrec at ICC as soon as possible. Now watch a video primer. The various 'rings of the three' are very useful. The lower level alternative to the Notum Rings being the Ring of Presence; backyard bosses drop the QL4ish version that add + 1 to many useful skills.

Must collect:

- Notum Ring of the Three.

- Platinum Ring of the Three.
- Guardian Circuit Board - 5 slot belt.
- Exarch Robe(s) - convert to Inner Sanctum passes - you'll need minimum five passes.

Optional:

- Barrow Strength.
- Ring of Tattered Flame.
- Ring of Weeping Flesh.
- Bloodleech Ring.
- Ring of Eternal Night.
- Dark Memories - ncu chips.
- GoT tank armor for the social clothing slot since Neleb's robe will be in the armor slot.

## Temple of Three Winds

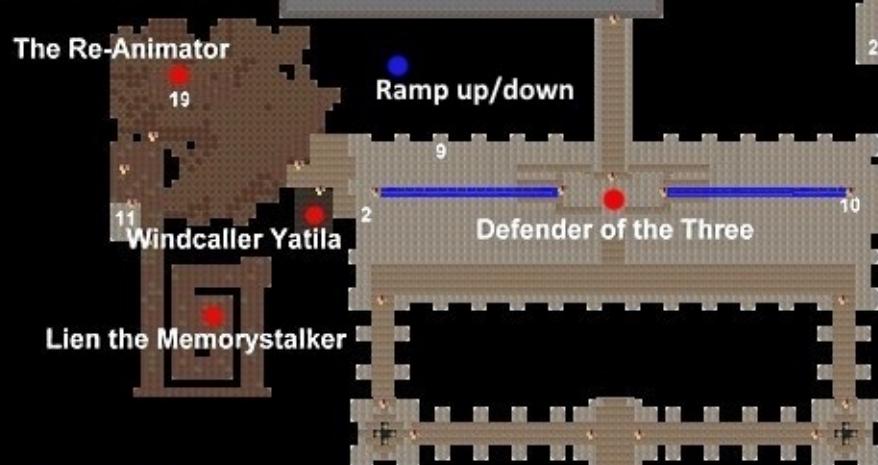
## Faithfuls

1 - Oran the Faithful	2 - Caska the Faithful
3 - Nathan the Faithful	4 - Malikai the Faithful
5 - Pallen the Faithful	6 - Muriel the Faithful
7 - Cyth the Faithful	

## Acolytes

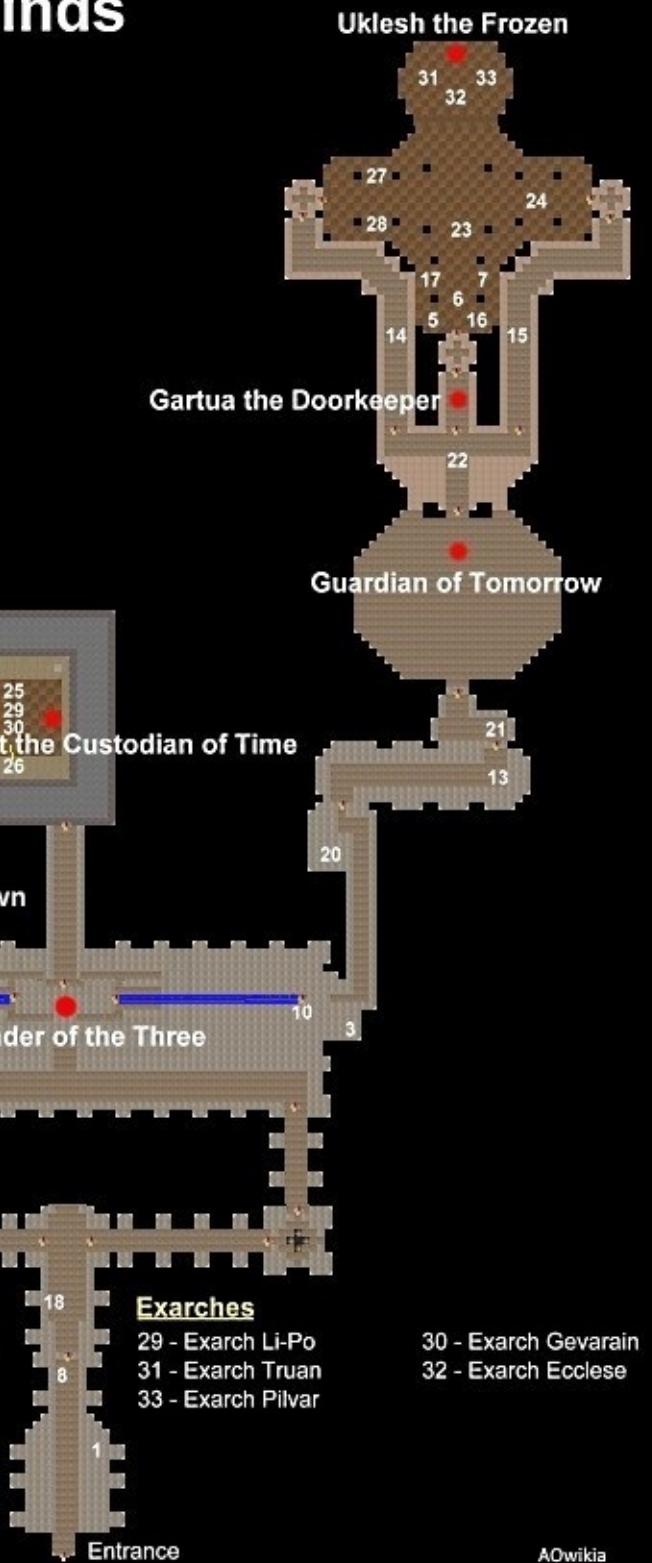
8 - Acolyte Seleen	9 - Acolyte Dominic
10 - Acolyte Kellian	11 - Acolyte Betany
12 - Acolyte Opet	13 - Acolyte Felid
14 - Acolyte Bryant	15 - Acolyte Amber
16 - Acolyte Kalen	17 - Acolyte Verona

## Reverends



## Windcaller

25 - Windcaller Yen      26 - Windcaller Rendal  
27 - Windcaller Tilla      28 - Windcaller Donnel



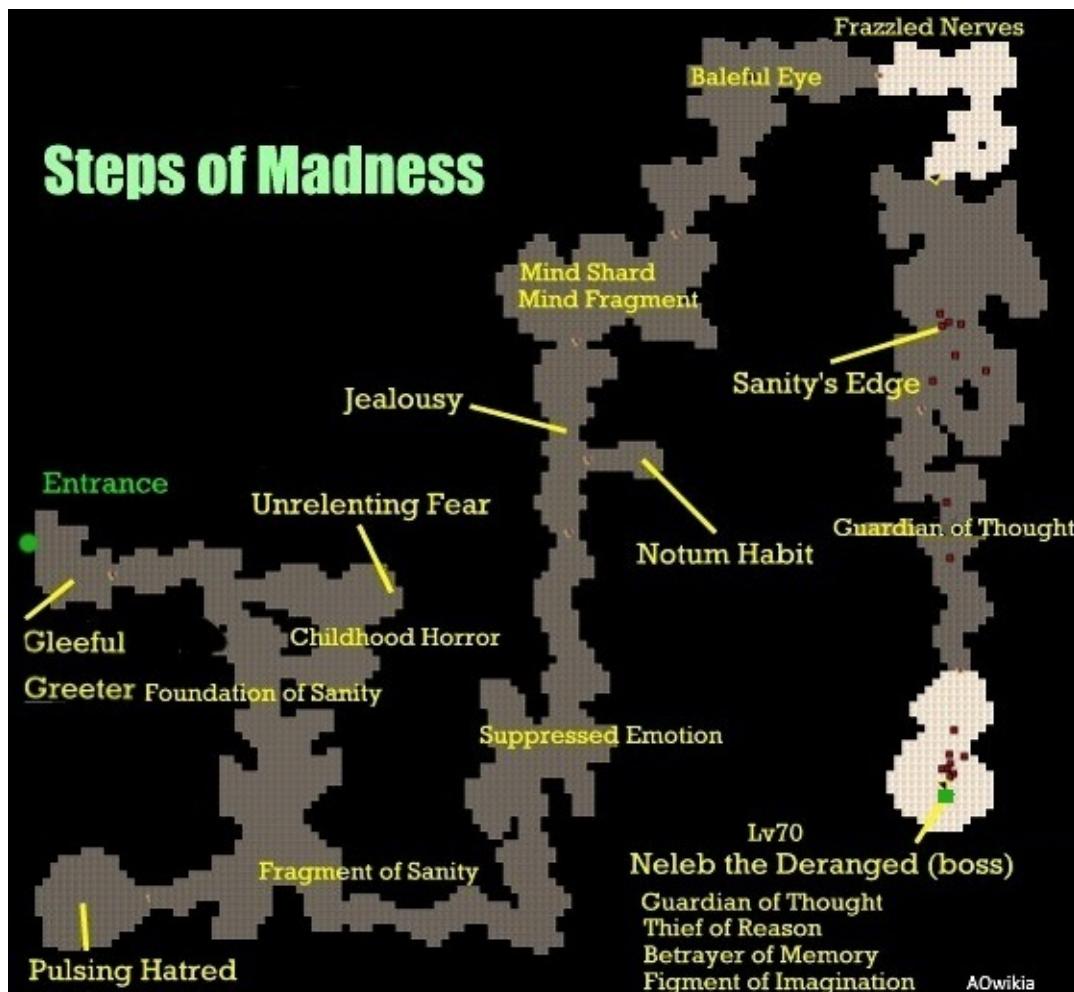
## Exarches

29 - Exarch Li-Po      30 - Exarch Gevarain  
31 - Exarch Truan      32 - Exarch Ecclese  
33 - Exarch Pilvar

This is a level 70ish dungeon, but you need Neleb's robe at level 36. Ask an Engineer to team you, kill Neleb and then beacon warp you to loot Neleb's Nano-circuit Robe, Dream Mesh Circuit 5 slot belt and Fractured Sanity. Failing that, the named mob Notum Habit also drops the Dream Mesh Circuit and NCU chips. Mob pathing is murderously buggy throughout this dungeon. Any other way down to the lair usually ends in tragedy. You'll need Neleb's robe the moment you gain level 36. Begin asking people for help as early as level 30. Patience and perseverance!

Must collect:

- Neleb's Nano-circuit Robe.
- Dream Mesh Circuit 5 slot belt.
- Fractured Sanity - when crafted makes Fractured Nightmare +4 Int/Psychic ring.



## 3.0 Controlling your robotic pet

Pets are controlled through the command line (press enter, type in the command), or simply type "/help pet" and click on each of the links to create a specific macro. Macros simplify actions we take when interacting with players, the game and its environment. Pressing "y" on the keyboard opens and closes the hotbar.

If you'd like to make your own macro then the following may be helpful:

- /macro Attack /pet attack
- /macro Guard /pet guard
- /macro Report /pet report
- /macro Wait /pet wait
- /macro Follow /pet follow
- /macro Behind /pet behind
- /macro Rename /pet rename "feeble automation"
- /macro Duel /pet duel
- /macro Pterm /pet terminate

### 3.1. Hotbar macros

Macros for use independent of our robotic pet:

- /macro assist /assist (playername)
- /macro loc /loc
- /macro inc /g %t incoming
- /macro stuck /stuck
- /macro term /terminate (you die)

### 3.2. Personal service towers



Outdoor stationary use only. Engineers have the option to deploy a stationary Personal Service Tower in addition to their regular attack pet. One can buy pre-fabricated QL5 - QL75 shells at any tower shop. The very low level towers are pretty weak, but at QL75 and up they become progressively better and add AC aura and pulse a heal of up to 90 points. Towers can be buffed including aura and speeches from teammates. Towers cannot be trimmed nor do they accept Android NCU Upgrades. Set a tower and watch closely how mobs behave when under attack by engineer, engineer pet, and service tower. Check the gift-wrapped basket quest for details on making your own service towers. I craft and regularly use the QL150 and QL220 service towers versions.

If you'd like to make your own macro then the following may be helpful:

- /macro Attack /tower attack
- /macro Guard /tower guard
- /macro Report /tower report
- /macro Wait /tower wait
- /macro Rename /tower rename "personal service tower"
- /macro chat /tower chat "this is not the droid you are looking for"
- /macro term /tower terminate
- /macro Duel /tower duel

Controlling each pet independent of the other:

- /pet "pet name" attack
- /tower "tower name" attack



### 3.3. Pet and tower maximum range

This subsection covers three issues:

- Command Range - You can only issue commands to your bot within a relatively small range (approximately 10 - 15 meters). Issuing commands outside of this range will have no effect.
- Maximum Range - Pets will cease fighting and return to us if the pet gets 50 meters or further away from us. You will receive a text warning and some time to get back in range when this happens.
- Towers will deactivate if the owner dies or travels beyond the 50 meter pet range.

### 3.4. Land control towers and tower types

This section describes the different types of towers you can use in the area where your organization have set a Notum Control Tower. First off there are twelve different kinds of Towers divided into two different groups; Guardians and Turrets. Also new to Notum Wars are PGC (Personal Grid Converter) and Emergency Defense Shield Neutralizer generally found in Tower Shops.

#### 3.4.1. Turrets:

- Fire Sprouting Turret
- Massive Cannon Turret
- Simple Missile Turret
- Solar Turret

#### Fire Sprouting Turret

1. The Fire Sprouting Turret is a turret for the close combat professions.
2. It adds to Martial Arts. Riposte, Dimach and Brawling.

3. As an example a QL80 Fire Sprouting Turret gives +10 in those skills. And a QL 249 Fire Sprouting Turret gives +50
4. To build a Turret of this kind you only need Computer Literacy
5. This tower is type IV

### **Massive Cannon Turret**

1. The Massive Cannon Turret is good for almost all professions.
2. It adds to Biological Metamorphoses and Matter Metamorphoses.
3. As an example a QL40 Massive Cannon Turret gives +5 in those skills. And a QL 230 Massive Cannon Turret gives +42.
4. To build a Turret of this kind you need Computer Literacy and Nano programming.
5. This tower is Type II.

### **Simple Missile Turret**

1. The Simple Missile Turret is good for almost all professions.
2. It adds to Melee/ma AC.
3. As an example a QL75 Simple Missile Turret gives +118 in that armor class. And a QL 238 Simple Missile Turret gives +363.
4. To build a Turret of this kind you only need Computer Literacy.
5. This tower is Type I.

### **Solar Turret**

1. The Solar Turret is good for almost all professions.
2. It adds to all ACs.
3. As an example a QL40 Solar Turret gives +100 in Cold, Fire, Melee/ma, Imp/Proj, Energy and Disease Armor Classes and +50 in Chemical and Radiation Armor Classes. And a QL 228 Solar Turret gives +333 in Cold, Fire, Disease and +510 Melee/ma, Imp/Proj and +765 Energy Armor Classes and +205 in Chemical and Radiation Armor Classes.
4. To build a Turret of this kind you only need Computer Literacy.
5. This tower is Type III.

#### **3.4.2. Guardians:**

- Guardian Conductor of Derivation

- Guardian Conductor of Life
- Guardian Conductor of Mind
- Guardian Conductor of Ransacking
- Guardian Conductor of Speed
- Guardian Conductor of Tapping
- Guardian Conductor of Transfer
- Guardian Conductor of Will

## **Guardian Conductor of Derivation**

1. The Guardian Conductor of Derivation is good for all Nano Professions.
2. It adds to NanoC. Init. and reduces NanoC. Init. for enemies around it.
3. As an example a QL40 Guardian Conductor of Derivation gives +10 NanoC. Init. to you and -40 NanoC. Init. to enemies in vicinity. And a QL 243 Guardian Conductor of Derivation gives +61 NanoC. Init. to you and -242 NanoC. Init. to enemies in vicinity.
4. To build a Guardian of this kind you need Computer Literacy and Nano Programming.
5. This tower is Type XXXII.

## **Guardian Conductor of Life**

1. The Guardian Conductor of Life is good for all professions.
2. It adds to your Max Health and HealDelta to allies
3. As an example a QL25 Guardian Conductor of Life gives +105 max Health to you and +28 HealDelta to allies. And a QL 227 Guardian Conductor of Life gives +947 Max Health to you and +195 HealDelta to allies.
4. To build a Guardian of this kind you need Computer Literacy and Psychology.
5. This tower is Type XX.

## **Guardian Conductor of Mind**

1. The Guardian Conductor of Mind is good for all professions.
2. It adds to your Max Nano and NanoDelta to allies.
3. As an example a QL40 Guardian Conductor of Mind gives +50 Max Nano to you and +15 NanoDelta to allies. And a QL 239 Guardian Conductor of Mind gives +1038 Max Nano to you and +204 NanoDelta to allies.
4. To build a Guardian of this kind you need Computer Literacy and Nano

Programming.

5. This tower is Type XXI.

## **Guardian Conductor of Ransacking**

1. The Guardian Conductor of Ransacking is good for almost all Ranged professions.
2. It adds to your Ranged skills and reduces Ranged skills to enemies in vicinity.
3. As an example a QL80 Guardian Conductor of Ransacking gives +10 all Ranged skills to you and -20 to enemies in vicinity. And a QL 247 Guardian Conductor of Ransacking gives +39 to you and -81 to enemies in vicinity.
4. To build a Guardian of this kind you only need Computer Literacy.
5. This tower is Type XXX.

## **Guardian Conductor of Speed**

1. The Guardian Conductor of Speed is good for all Close Combat fighters.
2. It adds to your Physic. Init. and to Melee. Init. to you and to your allies around it.
3. As an example a QL40 Guardian Conductor of Speed gives +10 Physic. Init. and Melee. Init. to you and +5 Physic. Init. and Melee. Init. to allies. And a QL 225 Guardian Conductor of Speed gives +112 Physic. Init. and Melee. Init. to you and +35 Physic. Init. and Melee. Init. to allies.
4. To build a Guardian of this kind you only need Computer Literacy.
5. This tower is Type XXIV.

## **Guardian Conductor of Tapping**

1. The Guardian Conductor of Tapping is good for stealthy types.
2. It adds to your Concealment and reduces enemies health in vicinity.
3. As an example a QL30 Guardian Conductor of Tapping gives +13 Concealment to you and -51 Health to enemies in vicinity. And a QL 239 Guardian Conductor of Tapping gives +48 Concealment to you and -554 Health to enemies in vicinity.
4. To build a Guardian of this kind you need Computer Literacy and Psychology.
5. This tower is Type XXVIII.

## **Guardian Conductor of Transfer**

1. The Guardian Conductor of Transfer is good for everyone that wants more defence.
2. It adds to your All Defence and to enemies around it, it reduces All Def.
3. As an example a QL40 Guardian Conductor of Transfer gives +10 AllDef. to you and -10 All Def. to enemies in vicinity. And a QL 236 Guardian Conductor of Transfer gives +74 All Def. to you and -152 All Def. to enemies in vicinity.
4. To build a Guardian of this kind you need Computer Literacy.
5. This tower is Type XXXI.

## **Guardian Conductor of Will**

1. The Guardian Conductor of Will is good for Nano type professions.
2. It adds to your Psycho Modi and Sensory Impr and to allies around it, it adds Nano Resist.
3. As an example a QL40 Guardian Conductor of Will gives +5 Psycho Modi and Sensory Impr to you and +5 Nano Resist to friends around it. And a QL 230 Guardian Conductor of Will gives +36 Psycho Modi and Sensory Impr to you and +36 Nano Resist to allies.
4. To build a Guardian of this kind you need Computer Literacy.
5. This tower is Type XXIII.

## 4.0 Mission briefing

Why bother doing missions? Because this is where we get free armor, weapons, devices, nanos and earn some spending money. Not all items are missionable, but most everything we need at low levels may be found in missions. Missions also offer a quick and easy way for people with limited play time to get in some gaming without the usual hassles involved in non-instanced outdoor solo/team adventuring. Additionally, the Clan or Omni mission token neckboards are valued for their modifier bonuses. Neutrals cannot use sided token boards, although they do have alternatives at later levels.

Buy a few backpacks to store away all the mission loot, a lockpick to open locked doors and chests and a stack of free movement stims to remove hostile root and snare programs. There's nothing worse than being blocked by a locked mission door, or unable to liberate a mob's precious belongings from a locked chest or getting rooted-in-place for five minutes. Getting enough credits to fund your engineer is pretty hard to start off with, but this is the same for all professions. Doing missions helps to relieve at least a portion of the credit crunch. It's also always worth checking forum topics and guides on how to earn credits.

Before getting too far along in this section go to AO Universe and get the latest functional version of Clicksaver - or the MishBuddy app from the developer website. As long as one of the two versions work on your computer it really doesn't matter which one you use.

### 4.1.0 Mission locations

Zone location is important. For mission levels up to level 30 try getting same-zone missions or missions close to a whompah entrance or grid terminal. Check mission terminals in various cities or outposts and then look closely at the planet map to see where each mission sends you previous to accepting a mission because long, dangerous runs to missions are a huge waste of your time.

### 4.2.0 Mission types

There are five mission types: find item, return item, repair, find person, and kill

person missions:

1. Find item missions are generally the preferred type of mission among adventurers, as you get to keep the found item as well as the mission reward. Once you pick up the item, your mission ends, so don't pick it up until all the mobs are dead if you are going for a 100% chance to get your mission token(s). Please note that many find item missions now ask you to locate some Urgent Sensitive Information or an Art Container which is worthless and negates the primary benefit for pulling find item missions.
2. Return item missions involve picking up the item, then returning to the same mission terminal you received the mission from, and then giving that item to the terminal in order to complete the mission. Some players like these missions as you get two chances at the item: once as the item to NOT return to complete the mission if you wanted it (simply delete the mission after you retrieve the item) and a second time as the mission reward.
3. Repair missions will give you a repair part, data module or food sack to deposit in some machine in the mission. To complete the mission simply pick it up out of inventory and right click it on the machine in the mission.
4. Find person missions involving targeting the selected human/monster for about 10 seconds. You are then free to kill the target if you want, or leave him/her/it living. These mission types are annoying when trying to earn tokens as you need to make sure you don't mistakenly target the mob and prematurely complete the mission. On the other hand, if you are trying to blitz the mission for an item then this mission type is a good candidate.
5. Kill person missions are similar to find person missions, but the mission completes when the person/mob is killed, rather than just being targeted. This may mean that you encounter the target early in the mission, and can't access rooms beyond without it attacking you. Running for the entrance in these cases seems to have it waiting for you when you zone back in, too. That means that you can't always do enough of the mission to earn a token. Also, if you have your map upgrades for people and monsters, you can sometimes pick out the target on the map. With kill person missions, the target can be one of two types visually. If the human is wearing brown plated armor, it is non-aggressive, if it is wearing a blue Hawaiian shirt, it will be aggressive, and attack on sight, so if you run into the person before you are ready to complete the mission, you have to either go through the rest of the mission with them beating on your back (have done that before ) or just kill them and finish the mission prematurely.

### 4.3.0 Mission sliders



If you click on the small arrow to the right of the Request Mission button, you will reveal sliders where you can select the mission parameters. Its not absolutely known for certain what each slider does, but the following are what we do know about them.

- The Good-Bad slider is used for changing the mission type while the other sliders remain at a constant setting. Generally, the closer to good the selector is, the more altruistic the mission, while the closer to bad the selector is, the more violent the mission. Some people think good missions tend to have fewer mobs than bad missions, but I've not seen that correlation.
- The Order-Chaos slider determines the type of mobs. When the selector is set to order, you will be fighting humans of various classes. When the selector is set to chaos, you will be fighting animals, mutants, cyborgs, and robotic models. When the Chaos slider is set to 100% Chaos, it chooses the second mob of paired mobs (such as found in large rooms and corridors) randomly instead of making it of the same type as the first. The random choice of second mob seems to be made once only and then applied to all mob pairs in the mission. In other words, if clan human was chosen as 2nd mob type for pairs in an otherwise all-hellhound mission, then it will be clan human in all large rooms and corridors. This has very important consequences for pet owners, because most of the time randomly chosen mobs will not assist each other, so a pet can be sent in to attack one of them

and the other mob will just stand there and not join the fight. This is very helpful both for soloing with a pet (it can kill high level mobs one at a time when two would overwhelm it), and also for pulling singles out of the room for teams (/pet follow after it has attacked one mob). Obviously nobody should enter the room or corridor --- nail those impetuous damage dealers to the ground outside --- otherwise the second mob will attack directly despite not being interested in assisting the first mob. Note that 100% Chaos is not infallible in creating non-assisting second mobs because the choice of 2nd is made independently of the choice of 1st for pairs, so that there is always a chance that they will both be hellhounds, for example, by coincidence. Also, some mobs do assist each other despite being of not exactly the same type, for example Aquaan Marines and Aquaan Queens, and hellhounds and bioarranged beasts, which reduces their independence slightly. The 100% Chaos setting has been invaluable to me as a TL6 engie. The top-trimmed and fully buffed ql 200 slayer can just about survive an encounter with a single 219 hellhound given chain-casting of A Maker's Touch pet heal, but two of them means a dead pet in under 30 seconds, so full Chaos extends the soloing life of an engineer significantly.

- The Open-Hidden slider determines the prevalence of locked doors and chests, and secret walls that have chests hidden behind them.
- The Phys-Myst slider determines the combat style of the mobs in the mission. When set to physical, expect the mobs to get right up close and beat on you with swords, clubs and fists. When set to mystical you will face more nano-using and ranged weapons wielding targets.
- The HeadOn-Stealth slider seems to determine the number of trapped chests and also the prevalence of mission security devices (security cameras and turrets) in the mission. The closer to stealth you have the setting, the more of these will appear. The Money-XP slider. In general, and at low levels, the bonus XP seems to amount to about 1 mob's worth of experience gain in the mission.

#### 4.4.0 Soloing missions

Soloing missions is an excellent way of finding useful items and earning credits for trading, so it's well worth learning to get to the mission and then complete it with all possible alacrity. Soloing team missions is only better if you and your robotic pet can kill the mission boss - it's better to complete solo missions than fail at clearing the team mission boss room. Of course to get team missions you

at least temporarily require a teammate, or you need to multibox, so there's that to consider as well.

#### **4.5.0 Blitzing missions**

Blitzing is a process of running your way through a mission purely for the reward, meaning you don't kill anything. Runspeed is probably the most important skill for doing this. Always save as near to the mission entrance as possible before attempting a blitz, this way if you die during the run-though you've lost nothing except for the few minutes it takes to recover and return to the mission.

#### **4.6.0 Daily and CRU missions**

Daily task NPC are found in select office buildings. 514 x 440, Old Athen; 660 x 314, Rome Blue and 680 x 584, Borealis. Daily tasks vary by level. Most of them are fun the first time through the process. 18 hour lockout timer upon completion.

There is a level 50 requirement to receive CRU missions. There is a NPC for each faction who will give a task every 18 hours for you to get a nodrop and unique 25% CRU if you complete the mission for them. I seem to recall lots of reflect bracers and NCU chips can be found in these missions - more than the typical RK missions by comparison. Neutrals will find Sprysi D'Lere at 409 x 309, Newland City near the whompah.

#### **4.7.0 Team mission and dyna-camp bosses**

You may be familiar with those nasty boss mobs at the end of team missions and in dyna-camps. You know the aggressive, large monsters that shimmer in a strange aura and insist on trying to tear you from limb to limb? Yes, that's them. Did you know the color of that aura dictates which modifier that boss is under the influence of?

The following describes what each of these modifiers actually does to the bosses abilities; remember that the boss may also retain abilities inherent with their species type and these modifiers are applied on top of their usual template. So while some of the modifiers debuff boss initiatives, the positive effects may

effectively turn a mere Mech Dog into a fierce Hellhound!

Understanding these differing elements may at least prepare you and your team for what is to come in the fight, and perhaps help you decide on some tactics before you confront them.

#### **4.7.1 Damage modifiers**

This group of modifiers effect the damage type inflicted by the boss, whilst also increasing their ACs in that damage type and adding a reflect shield of that type! If only we players had access to such prodigious buffs! The actual bonus is scaled by the level of the boss itself. All these Boss types increase the size of the Boss by 40%.

- Chemical damage boss: green aura
- Cold damage boss: white aura
- Energy damage boss: blue aura
- Fire damage boss: red aura
- Poison damage boss: aqua aura
- Radiation damage boss: purple aura

#### **4.7.2 Boss Ability Modifiers**

These two modifiers effect certain abilities of the Boss and can be particularly nasty when encountered:

##### **Critical Hit Boss**

1. Tan aura
2. This can be a dangerous ability for a boss to have, it adds significantly to their Critical Hit Chance, but does at least debuff all the bosses Initiatives
3. This modifier increases boss size by 60%

##### **Damage Shield Boss**

1. Orange aura
2. Another potentially nasty on this adds a Damage Shield for all damage types. Thankfully the Boss does standard, unmodified Projectile or Melee damage (depending on profession class, i.e. an Enforcer will do melee

damage etc)

3. This modifier increases boss size by 40%

### **4.7.3 Special Boss modifiers**

This next series of models can be very dangerous, while the other abilities listed above are bad enough, these four modifiers can mean both a very tough and very long fight.

#### **Big, Strong, and Slow**

1. Yellow aura
2. This modifier adds to all Damage types by a significant amount, often equally a normal critical hit, it does at least debuff all the bosses Initiatives and Run Speed.
3. This one increases boss size by 80%

#### **Massive Health Booster**

1. Light red aura
2. This one can mean a long, long fight as it increases health dramatically, often by more than 300% A boss with this modifier will only do standard, unmodified Projectile or Melee damage (depending on profession class).
3. This time the boss increases in size by 100%

#### **The Collector**

1. Pink aura
2. Increases health significantly as level grows, at lower levels it's not too bad a difference, but at higher levels this can give the boss a staggering amount of HP. It also adds to Energy Damage type
3. The boss size increases by 40%

#### **The Rainbow**

1. Grey aura
2. Now this is the real meaty one and can turn a battle in a moment. Like the previous modifier it adds to the bosses HP based on level, it then adds to all damage types, again scaled by level. At Level 1 it's +1 all the way through

to +200 (At Level 400 apparently, although it's unknown if any such creature exist outside of special events. The danger is through its special ability to cast a nano cycle modulating damage types and ACs. The cycle begins with Melee, then Radiation, then Poison, then Energy, the Fire, then Projectile, then Cold, then Chemical, and back to Melee damage. Each nano adds 50 to that same AC, and lasts 60 seconds. This can be a real pain in a battle as there is generally at least one 'hole' in your ACs and this modifier means the boss will find it!

3. This modifier increases boss size by 20%

## 5.0 Skills

This section covers the skills essential and highly useful to low level engineers. All skills are permanently increased by Improvement Points as well as something called "trickle down" from the Abilities page; this means a small increase in a particular skill based on the aggregate points in its Parent Ability. A skill may only be raised a limited amount before its Parent Ability needs to be increased as well. The most important skills for us engineers are those that make our bots go, govern our implant use, increase and modify our weapon handling abilities and utility skills, without which we're not much use to anyone.

### 5.1. Essential skills

At every step the following are essential for new engineers:

- Intelligence - trickles down to all nano skills, most trade skills and computer literacy. Max IP. Agility - trickles to nano, pistol and evade skills among others. Max IP. See section 11.3.
- Stamina - trickles to hit points and nano skills. Also implant wear requirements. Max IP. Matter Creation - bot creation and other nano programs, chargers. Max IP.
- Time and Space - bot creation and other nano programs. Max IP.
- Matter Metamorphosis - assist combat array and shields. Max IP.
- Computer Literacy - NCU, belts and grid travel. Max IP.
- Treatment - Implant requirements, health kits. Max IP.
- Body Development - Increases total hit point pool. Max IP.
- Nano Pool - Increases total nano pool points. Max IP.

### 5.2. Important secondary skills

Skills new engineers should pay close attention to:

- Pistol. Somewhat easy to raise using nano programs. IP this skill at 90%.
- Fling Shot. Implant clusters and IP. Try to keep this skill at 75%-80%.
- Multi-ranged - required to dual wield pistols. This skill eats IP. It's also a needed and important skill. Knowing the skill required to wield the next secondary weapon one plans on using helps a lot. Look at wear

requirements for SOL K Mini and spend IP accordingly. IP to 85% or more.

- First Aid. Check root/snare debuff and hp/nano stim requirements and add IP accordingly. Save IP at low levels by wearing select omni-med suit pieces and implant left hand with first aid.
- Close Combat Evades - checks dice-roll against melee and critical damage. Maintain it at about 85%, but do not max yet. See also the Slider.
- Dodge Ranged evades- mitigates ranged damage. Maintain it at about 65%, but do not max yet.
- Duck Explosions. Leave this one alone. Few RK mobs use shotguns and grenade launchers. 0% IP.
- Ranged Init. Maintain at 40%-50% max level.

Max Abilities Sense, Strength and Psychic through level 20. No need to max them after level 20. Consider each in maintenance mode and feed some IP to all three until level 50. Parent ability and child skill dependency (or synergy) require all of us to maintain Abilities to a certain extent. Understanding how this functions and how to adjust them to your specific play style and circumstance become clearer as you level up and gain practical experience.

### 5.3. Skill chart

Depending on your breed (numbers below are based on Solitus). The chart shows the IP cost for every skill for every profession. Remember, the chart below only apply to Solitus.

On a level 200 character, the skill colors mean:

- Green skills (1-1.4) can be raised to 600
- Light blue skills(1.5-2.4) can be raised to 540
- Blue skills (2.5-3.4) can be to 480
- Dark blue skills(3.5-4.4) can be raised to 420
- Very dark blue(4.5-5) skills can be raised to 360 (only NTs have those.)

Base abilities modify this.

Profession	Adv	Age	Bur	Doc	Enf	Eng	Fix	Kee	MA	MP	NT	Sha	Sol	Tra
Body Dev.	1.2	2.4	2.4	2	1	2.4	1.8	1.2	1.5	2.4	2.4	2.6	1.1	2
Nano Pool	1.6	1.2	1.4	1	2	1.8	1.6	2.2	1.6	1	1	2.5	2	1.2

Dodge-Rng	1.6	2.1	2.4	2.4	2	2.5	1	1.6	1	1.6	2.4	2.4	1.5	1.9
Evade-ClsC	1.8	2.4	2.4	3.2	1.5	4	1.6	1.4	1	1.6	3.2	1	2	1.9
Duck-Exp	1.6	1.6	2.4	2.4	2	2.2	1	1.6	1	2.4	2.4	1.2	1.8	1.9
Nano Resist	2.4	1.6	1.6	1.2	2.2	1.5	1.6	1.8	1.6	1.6	1	1.5	2.2	1.6
Deflect	1.5	1.6	3.2	2.4	1.4	4	2.4	1	1.5	4	3.2	1.4	2.5	2.5

1h Blunt	1.5	1.6	3.2	2.4	1	2.4	2.5	3.2	2.5	2.6	4	4	2.5	1.8
1h Edged	1	2	4	2.4	1	3.2	2	3.2	2	4	4	4	2	3.2
Piercing	1.5	2.5	4	2.4	1	3.2	2.5	3.2	2	3.2	4	1	2.5	2.5
2h Blunt	1.5	2.5	4	3.2	1.4	3.2	3.2	3.2	2	4	3.2	4	2.5	2.5
2h Edged	1.5	2.5	4	3.2	1	3.2	2.5	1	2	2.5	2.5	4	2.5	2.5
Melee Ener.	1.5	3.2	4	3.2	1.8	4	3.2	3.2	3	4	3.2	4	2.2	2.5
Martial Arts	2.8	1.6	2.8	2	1.6	2.8	2.8	3	1	2.8	2.8	1.6	2	2
Mult. Melee	1.4	2.5	4	3.2	1	4	2.5	3.2	2.5	4	4	1	2	3.2
Melee Init.	1.8	1.6	4	3.2	1	3.2	2.5	1	2	3	3.5	1	2.4	3.2
Psychic. Init.	1.6	1.6	2	2	1.6	3	2.4	3.8	1	3.2	3.2	3.4	2.4	3.2

Sneak Attack	1.5	1	2.4	3.2	2	4	3.9	4	3	4	3.2	1	3	4
Brawling	2.4	2.8	3.2	2.8	1	2.4	1.8	2	1.2	2.8	2.8	4	2	2
Fast Attack	2	2.5	4	2.4	1.5	4	2.5	1	2	4	3.2	1.4	2.4	3
Dimach	4	1.6	3	4	4	4	4	1.3	1.2	2.5	2.5	1	4	4
Riposte	3.2	3	3.2	3.2	1.2	3.2	2.4	1	1	3.2	2.4	1.4	2.4	3.2

Pistol	1	1.8	1.6	1.6	3	1.5	1.6	4	3.5	2.4	1.6	4	1	2
Bow	1.8	2	4	4	4	4	2.4	4	1	2.5	4	4	2.4	4
MG / SMG	2.5	2.5	3.2	3.2	2.5	3.2	1	4	3	3.2	3.2	4	1.5	2.4
Assault Rif	1.6	3	4	4	3.5	3	2.8	4	4	4	4.5	4	1	4
Shotgun	2.4	3.2	3.2	2.4	2.5	3.2	1.8	4	4	4	3	4	1.5	1.5
Rifle	1.7	1.3	4	4	4	4	2	4	4	4	4	4	2	2.8
Ranged Ener	2.4	2.5	4	4	4	3	2.5	4	4	4	4	4	1	3
Grenade	1.6	1.6	4	3.2	2.5	2	2.2	4	2.4	4	2.4	4	1.6	2.4
Heavy Weapons	3	3	4	4	2.5	2	2.5	4	4	4	4	4	1	4
Multi	1.5	1.8	4	4	4	4	2	4	4	2.5	4	4	2	2.5

Ranged	2	1.6	3.2	3.2	3	3.2	1.6	3.8	2.4	4	3	4	1	2.5	
Ranged. Init.	1	3.2	4	2.4	3.5	3.2	1.6	4	3.2	4	4	4	1	2.5	
Fling Shot	2.2	1.1	4	3.2	3.5	4	2.5	4	3	4	3.2	4	1.8	2.5	
Aimed Shot	1.8	3.2	4	3	3	3	1.5	4	4	4	4	4	1.5	3.5	
Burst	2.4	4	4	4	3	3	2.2	4	4	4	5	4	1.5	3.5	
Full Auto	1.6	2	4	4	2	3.5	2	4	1	2.5	4	4	2	4	
Bow Spc Att	1.6	1.2	3.2	3.2	1.6	3.2	2.5	4	1	3.2	2.4	1.6	1.6	2.4	
Sharp Obj	1.8	1.2	1.6	1.6	1	2.5	1	2.4	3.2	2	1	1	3.2	2	1.6
Matt.Metam	1.5	1.6	1	1	2.5	2.4	3.2	2	1	1	1	1	1.9	2.4	1.8
Bio Metamor	1.8	1.6	1	1.6	2.5	2.4	2.4	1.6	2	1.6	1	1.4	2	1.5	
Psycho Modi	1.6	1.6	1	1.6	2.5	2.4	2.4	1.6	2	1.6	1	1.6	1	1.6	
Sensory Impr	1.8	1.6	1	1.6	2.5	2.4	2.4	2.4	1.6	1.6	1	1.6	2.4	1.8	
Matter Crea	1.8	2.4	1.6	1.6	2.5	1	2.5	3.2	2.4	1	1	3.2	2.5	1.5	
Time&Space	1.8	2.4	1.6	1.6	2.5	1	3.2	1.4	1.6	1	1	1.9	3.2	1.5	
NanoC. Init.	2	1.6	1	1	2.4	1.6	2.4	3.2	2.5	1	1	2.8	4	1.5	
Vehicle Air	1	2.4	2	2.4	1.6	1.6	1	2.4	3	2.5	2.4	3.2	1.6	1.4	
Vehicle Ground	1	2.4	2.4	1.6	1	1.6	1	2.4	2.5	2.5	2.4	3.2	1	1.4	
Vehicle Water	1	2.4	2.4	2.4	1.6	1.6	1	2.4	2.5	2.5	2.4	3.2	1.6	1.4	
Run Speed	1	1.6	2.4	2.4	2.4	2	1	2	1	2.4	2.4	2.4	1	2	1.9
Adventuring	1	3	2	2	1.5	2	2	1.8	1.6	2	2	1.6	1.5	1.4	
Perception	1.6	1	1.6	2.4	2.4	2.4	1	1.2	1.6	2.4	2.4	2.4	2.4	1.4	
Concealment	1.7	1	2.4	2.4	2	3.2	1.5	3.2	1.5	2.5	2.5	1	2	1.8	
Psychology	1.6	1	1	2.3	1	2.4	1.5	1	1.6	1.6	2.4	2.4	1.5	1	
Trap Disarm.	1.6	2	2.4	2.4	2.4	1.6	1	2.4	2.5	2.4	2.4	1.8	2.4	2.4	
First Aid	1.2	2	2	1	1.6	2	1.2	1.2	1.6	2	2	2.5	2	1.6	
Treatment	1	2	2	1	2	1.6	1.2	1.8	2	2	2	1.5	2	1.6	
Mech. Engi	1.2	1.5	1.8	2	2	1	1.5	3.2	2.4	2	2	3.2	2	1.2	

Elec. Engi	1.6	2	2.4	1.6	1.8	1	1.5	3.2	3.2	2	1.6	3.2	2.4	1
Quantum FT	1.6	2	2.4	1.6	3.2	1	1.5	3.2	3.2	2.4	1.6	1.4	2.4	1.2
Chemistry	1.6	1.5	2.4	2	1	1.2	2	3.2	2.4	2	2	3.2	2.4	1.3
Weapon Smt	1.6	4	2.5	1.5	1.5	1	1.3	2	2.4	2.5	3.2	3.2	1.5	1
Nano Progra	4	2.4	1.6	1.6	2.4	1.2	2	3.2	2.4	1	1	4	2	1.4
Tutoring	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Break&Entry	2	1.5	2	2	2	1.6	1	2.4	2	2.4	2.5	1.6	2	1.8
Comp. Liter	1.6	1.6	1	1	1.6	1.3	1	2.4	2	1	1	2.4	2	1.5
Pharma Tech	2.4	1.6	2.4	1	1.6	1.5	1.5	3.2	2.4	2	2.4	1.8	2	1

#### 5.4. Resetting skills

IP Reset points provide the only method for you to reset character skills. There are individual skill and complete character reset options. The game does change and the rules were once revised on a regular basis - and one could not say with certainty when those choices would require a rethink. If you have used all your IP Reset Points you will need to visit the Item Store and purchase reset(s). If you're short in IP for a particular skill it is always better to level rather than to use reset points. Every character has access to a fixed amount of IP Reset Points, and you'll get more every time you reach a new title level (but not at level 205). Titles levels change at levels: 15, 50, 100, 150, 190 and 205. Each TL point grants a single skill reset. Using a reset point returns all IP you have spent in that skill to the unused IP pool. To reset a single skill, or complete reset, one must remove all weapons, equipment, armor and implants.

## **6.0. NCU and buffs**

Better living through nano formula. Nano programs are stored in our nano compiler unit (NCU) memory chips. Total NCU space is a critical factor in proper character development. New arrivals generally fail to appreciate the importance of NCU and how it's tied to character development. Upgrade your chips and belts as often as IP and credits permit. The more total NCU one has, the better. One temporary way of increasing ncu space is through the Fixer line of ncu recompiler buffs. Ask a Fixer for help with that. This single aspect of the early game can't be stressed enough. As a Trader I cannot count the times that some innocent newbie asked for a 131 wrangle while having less than 30 total NCU space. Many tears and gnashing of teeth ensue. Don't be that newbie! Ask experienced players for help and advice. People really do want to see you succeed. I've never turned a newbie away, and I'm not unique in that regard.

### **6.1. General nano crystals**

Buy the Pet Warp nano; it summons your robotic pet directly to you - very useful when your pet gets stuck or lost - which happens with freakish regularity. Buy nano program Enmity from the general terminal in the nano shop, it's a long range nano taunt and is very useful for pulling in select situations. It truly is a must-have nano program. More on that later in section 12.2. If you've not bought the complete line of composite nano crystals then now is the time to do so.

### **6.2. Where to get nano crystals**

As with all professions a large amount of nano crystals are available in basic, advanced and superior nano department rooms. All nanos available in shops are also available as mission rewards. After quality level 125 you have to find things for yourself. Most nanos above QL125 are available as mission rewards as well, except for those few profession defining crystals we must hunt for. Those nanos are only available as team or dyna boss loot. All the Sympathetic and Disruptive line of nano-programs are available as mission rewards or mission loot. Later versions of our assist combat array nano crystals drop from dyna and team mission bosses.

### **6.3. Engineer buffs**

You can find a list of Engineer nanos at AO Universe, AOItems or Auno.org. One particular crystal to pay close attention to is the Assist Combat Array nano line for our bot. This nano line is essential for increasing pet damage per second. Philosopher's Stone increases chemistry and pharmaceutical skills for help in various trade skill processes. Crowbar Subtlety increases the breaking and entering skill so we can open those pesky locked mission doors and chests.

### **6.3.1. Assist Combat Array**

Augments the combat abilities of the engineer's pet.

- Level 15: Assist Combat Array will increase the attack rating of the pet by 32 points, and the defensive rating by 6 points.
- Level 25: Monitor Combat Array - increase attack rating by 79 points, and defensive 14 points.
- Level 50: Enhance Combat Array- increase attack rating by 120 points, and defensive by 21 points.

### **6.3.2. Offensive and defensive auras**

Engineer defensive and offensive aura nano have two components, the main component (server) runs in your own NCU, this will pulse out every 20 seconds or so the other half of the program (client). The client is the important bit since that's the one that provides the modifiers. You will end up with server and client pulsing in your NCU when you run it, all other members will only have the client side. Our defensive auras range in effect from AC auras to damage increasing auras. You'll only be able to run one at a time. Which you use depends on the situation really, the reflect and damage shield auras are only useful if members of the team are using those kinds of shield. The AC aura is very useful. Damage buff auras aren't used much, but you may want to consider them, the highest adds 25 extra damage for a cost of 2 NCU. Engineer are the only profession that can debuff certain types of shields, and possess the most powerful blinds in the game. Our Offensive auras carry a chance to break calms or draw in extra mobs to the fight - so use them with care.

### **6.3.3. Damage shield debuff**

This line of auras reduces the damage you take from any damage shield. There

are 5 nanos in this line. I find these most useful when facing team mission and dyna camp boss mobs with obscene damage shields. It does seem to have some problems landing on occasion, but boss mobs have pretty high nano resists. However, teams can be very grateful when the 150 damage they've been taking per hit is substantially reduced.

- Disruptive Field Negator -4
- Damage Disruptive Shielding Negator -14
- Damage Disruptive Barrier Negator -28
- Damage Disruptive Retaliatory Negator -44
- Damage Disruptive Retributive Negator -61

#### **6.3.4. Reflect shield debuff**

This line reduces the effectiveness of reflect shields, it reduces the percentage of damage reflected, which makes it very powerful against all reflect shield users. This includes the Soldier program Total Mirror Shield and the NT program Nullity Sphere.

- Disruptive Field Harmonics -15%
- Disruptive Cocoon Harmonics -22%
- Disruptive Phase Harmonics -36%
- Null Space Disruptor -48%

#### **6.3.5. Blind - Add All Off debuff**

Finally the most powerful of our lines. This one has a negative Add All Off modifier. Add All Off directly effects Attack Rating. Attack Rating is the number used to determine whether something hits, misses or is a critical. The blinds simply reduce the Attack Rating value by a very large amount. The blinds can be used to completely shut down a mob making it unable to hit you, this doesn't stop it fighting, just makes it as dangerous as a common backyard leet. In effect this line provides us with some basic crowd control, it's not as effective as a calm, but it does give us an effective option in a difficult situation. They are short range and will break on a single point of damage, or if another offensive program lands on the target.

- Disruptive Photon Deflector -370

- Disruptive Photon Absorber -640
- Disruptive Photon Devourer -890
- Disruptive Photon Annihilator -1095
- Disruptive Void Projector -1210

### 6.3.6. Sloughing Protective Field

Creates a powerful, yet specialized force field around all the people in the engineer's team. This field will remain dormant until the person is attacked by a special attack, such as Brawl, Burst or Full Auto. When such an attack upon the person is made, the field comes instantly to life and fully absorbs the effects of that attack. This shield can absorb 1 special attack before being rendered useless.

## 6.4. Meta-Physicist buffs

We simply can't get by without help from MP's. If you can help an MP in any way, then please do so.

- Teachings - each of these programs adds 25 to nano skills.
- Masteries - adds 50 to nano skills.
- Infuse with Knowledge - adds 90 to nano skills.
- Mocham's Gift - adds 140 to nano skills.
- Advanced Symbol Manipulation - adds 80 Nano Programming.

## 6.5. Trader buffs

Skill Wrangle - Each successive version adds a greater point total to all nano and weapon skills. Weapons specials like fling shot and burst are not increased by wrangles. Wrangles are NCU intensive buffs. Don't ask for a 131 wrangle If all you need is a 68 point skill boost. A 131 wrangle uses a lot of ncu space - space you may need for another important buff. Do the ncu math before asking for buff help!

- Wrangle - adds from 4 to 132 points for froobs.
- Apprentice - adds 40 to each of our trade skills.
- Journeyman - adds 80 to each trade skill.
- Maestro - adds 125 to each trade skill.

## 7.0 Bots, buffs and over-equipping (OE)

Over-equipping applies to our weapons, armor and pet, but the primary concern here is to explain how OE apply to our pet. Over-equipping rules do not apply to NCU memory, belts, Implants, maps and HUD or utility items.

### 7.1. What are over-equipping rules?

For pets it simply makes them stop responding to any and all commands. Failing to meet over-equipping rules for weapons and armor reduces their effectiveness in stepped increments of 25%. With a weapon instead of a pet the weapon would become 75% effective at the first OE level. If your skills were even lower, the weapon would then drop to 50% effective or more. OE rules do not effect stat modifications inherent to armor and weapons. IE: an over-equipped pistol at 75% effectiveness with an inherent +10 intelligence modifier will continue to grant that precious +10 intelligence bonus despite it's OE status. Low to mid level Engineers often run missions and dungeons wearing 25-50% OE red buff and combat pistols. Not to worry. It's a feature, not a bug.

### 7.2. What has that got to do with me?

In effect OE rules give engineers two things to consider whenever we make a bot or put on a piece of armor. The first being how we get all that extra skill in the first place, the second is how much skill do we have to maintain in order to continue using them. Lets use the Slayerdroid Guardian as an example. This requires 874 Matter Creation and Time-Space to execute the nano program and activate the shell. OE rules require that an engineer maintain 700 MC and TS to maintain control of their bot.

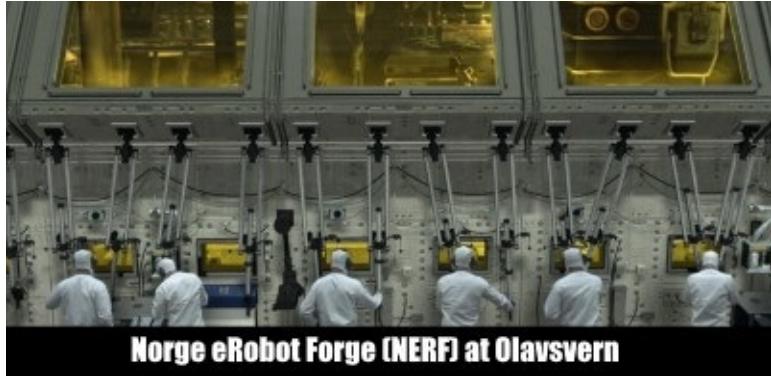
### 7.3. Doing the math

You can figure out exactly how much skill you need to use something, or the highest quality level you can possibly use without being affected with the following two formula. Amount of skill required to control = Amount of skill to make or wear \* 0.8 (Round up result to the nearest whole number.) Maximum amount within OE = Current skill \* 1.25 (Round down result to the nearest whole number). Fortunately for us there are player made chat bots which can

help with what you can and can't use. Simply send the help bot a /tell OE and it'll show you the result of both formula listed above.

## 7.5. Bugged pets

Unfortunately not all bots obey the rules, as they have been sabotaged before leaving Funcom's secret Norge eRobot Forge at Olavsvern.



The following list may be outdated by patch fixes, rendered superfluous by composite pet nano's or incomplete and require updates.

1. Lesser Automaton - Should require 20 MC-TS to be within OE. Actual requirement is 27 MC-TS. Making this bot the holder of the coveted "Most Bugged" award and it gets a big "LEAKS RADIOACTIVE FLUIDS" sticker.
2. Lesser Gladiatorbot - Nano upload requirement is 258 MC-TS. Shell requirement is 261 MC-TS. Should require 207 MC-TS to be within OE. Actual requirement is 217 - 220 MC-TS.
3. Inferior Gladiatorbot - Nano Upload requirement is 278 MC-TS. Shell requirement is 277 MC-TS.
4. Common Gladiatorbot - Upload req. is 317 MC-TS. Execution requirement is 318 MC-TS. Should require 254 MC-TS to be within OE. Actual requirement is 274 MC-TS.
5. Advanced Gladiatorbot - Should require 303 MC-TS to be within OE. Actual requirement unknown (testing required).
6. Perfected Gladiatorbot - Should require 312 MC-TS to be within OE. Actual requirement is 316 MC-TS.
7. Lesser Guardbot - Should require 352 MC-TS to be within OE. Actual requirement unknown (testing required). Inferior

8. Guardbot - Should require 362 MC-TS to be within OE. Actual requirement unknown (testing required).
9. Guardbot - Should require 405 MC-TS to be within OE. Actual requirement unknown (415+ requires testing).
10. Perfected Guardbot - Should require 449 MC-TS to be within OE. Actual requirement unknown (458+ requires testing). Patchwork Warbot - Should require 493 MC-TS to be within OE. Actual requirement is 514 MC-TS.
11. Lesser Warbot - Should require 507 MC-TS to be within OE. Actual requirement is 510+ MC-TS (testing required).
12. Common Warbot - Should require 545 MC-TS to be within OE. Actual requirement is unknown (testing required).
13. Military-Grade Warbot - Should require 578 MC-TS to be within OE. Actual requirement is 584 MC-TS.
14. Patchwork Warmachine - Should require 588 MC-TS to be within OE. Actual requirement unknown (testing required).
15. Flawed Warmachine - Should require 751 MC-TS. Shell requirement is 753 MC-TS. Should require 601 MC-TS to be within OE. Actual requirement is 612 MC-TS.
16. Slayerdroid Protector - Should require 682 MC-TS. Actual requirement is ~686 MC-TS.

## 8.0 Armor choices

Low level armor selection needn't be a difficult choice. This is a short list of popular and easily obtained armors. At low level there's only one real simple choice: Newcomer's Armor. It levels with you up to QL200 (right click it in your inventory.) The one piece that it does not have is a helmet, though carbonum versions are available in armor terminals.

Miy's armor of all varieties between L25 and L90 are uncommon drop and found almost exclusively in the odd chaos-settings missions in Broken Shores and the Cyborg Citadel in Avalon.

Miy's tank armor is uncommon to find at any level. Miy's Scary drops from drill dentist type models pretty often (Milky Way crash site for lowest level dentist models.) Lya Sangi and Nomad armors drop during seasonal events. Both offer useful upgrades in very specific slots.

Travel to the southern tip Omni Forest (via SoM portal at ICC) where you'll find a level 15ish Aquaan dyna camp /waypoint 540, 660. Aquaan minions drop lots of Miy's ranged and melee armor pieces at this camp.



### Stamina and Agility Armor

- Carbonum Armor. NCU mod. Trade skilled.
- Storm Carbonum - clan.
- Omni Carbonum - omni.

### Stamina and Strength Armor

- Rhinoman Armor. Melee focused. Missions, Stolt's Newland Desert, Stret West Bank, Varmint Woods and many other locations.
- Miy's Tank Armor.

### Sense and Agility Armor

- Apocalypse Leather Armor. Evades mod. Clan/Omni versions. Tradeskilled.
- Miy's Melee armor. Melee focused.

### Intelligence and Psychic Armor

- Miy's Nano Armor. Find low level Medusa in chaos missions or outdoors as swamp dwelling Medusa Savages.

### Agility and Strength Armor

- Miy's Ranged Armor. Aquaans and Borg. Chaos missions, hard/middle static mission buildings at Mort Sentinels.



## 9.0 Weapon Choices

As Froob Engineers we have few truly viable weapon choices. This section covers those simple yet effective options available to lower level engineers. We have pistols used for field combat and pistols used for modifying skills. The following are tried and true primary and secondary field combat weapons.

If you've altered the original start-up Solar-powered pistol while doing tasks at Arete then you must buy a shiny new spare Solar-powered pistol before leaving Arete - or suffer finding parts to craft a new one.

### 9.1. Combat pistols

- Engineer Solar-powered Pistol. Upgradable. Scales as one levels up. Highly recommended.
- SOL K-91 Mini-Monster. A very good combat pistol with fling shot. Dyna and team mission boss loot.
- Illegally Modified Ofab Peregrine - Subway version only!
- Eyemutant Orb Lasers. Low multi-ranged requirement. Excellent minimum damage. Looted whole or crafted.
- 000 weapons. Wear requirements are higher by quality level for pistol and fling compared to other weapons. Both crafted or shop bought. Somewhat customizable via the Engineer Heath tasks, too.
- Customized IMI Desert Reet - drops from the Lab Director at Foreman's.
- The Original Electronicum.
- SOL K-91 Monster. Higher level version of the Mini.

### 9.2. Grenade launchers

I use grenade launchers on my subscription account and love them. There just isn't a good grenade option for froobs.

- QL 40 Red Line Grenade Launcher +10ME. Dyna and team mission boss.
- QL 50 Red Line Grenade Launcher +30ME. Dyna and team mission boss.
- Nizno's Bomb Thrower. Arete upgrade.
- Solar-powered Grenade Launcher. Arete/Antonio Strucklund.
- QL150 OT Hurler Factotum. Dyna or mission boss.

- HSR Hedgehog Throwing Grenades. Buy stacks of QL10 and have at it. I use QL90's on my 200 froob engie.

### **9.3. Shotguns**

- Solar-powered Shotgun. Illegally Modified Ofab Silverback - Subway version only!
- Krutt shotgun.
- Maw of the Abyss.

### **9.4. Low level ranged buffing weapons**

The quick and dirty short list. We've got access to far more buffing weapons at all stages of the game. Check the comprehensive lists at AO Universe.

- QL1 Old English Trading Co. Intelligence +5.
- QL1 The Original Electronicum pistol. NCU +2. Secondhand Peddler.
- QL1 YES Support 1010. Sense +5. Mission reward.
- QL22 OT-Windchaser MO6 Quartz. Treatment +10. Mission reward.
- QL22 MTI B-94 +2 experience pistol (2).
- QL70 O.E.T. Co. Pelastio - Intelligence +10. Mission reward or Advanced store weapons terminal.
- Soft Pepper Pistol. QL1, 51. Sealed weapon receptacles looted from mission chests. Nano Pylon sets pistol QL.
- QL44 Inc Galahad Beyer. Computer literacy +20. Mission reward and basic shop weapons terminals.
- QL 1/40 Tsakachumi Counter-sniper Rifle. +Agi. Missions and shop weapons terminals.
- QL32 ICC Gun Bag. +10 Sense. Missions and basic shop weapons terminals.

## 10.0 Trimmers and Android NCU Upgrades

This section covers the items you can use on your robot to custom tune and calibrate it's combat performance. A untrimmed bot is a feeble bot. Trimmers are durable tools while Android NCU upgrades are consumable single use only.

### 10.1. Positive-Aggression trimmers

This line of trimmers can be found in general store terminals. Remember that the stock lists in general stores is randomly generated, so you may need to check a few times to find your preferred quality level. The maximum quality level is 100 which represents either full defense or full offense slider settings.

- Positive Trimmers - increase attack speed but decrease the bots ability to evade. The effect this trimmer have on our pet is invaluable. If you decide to use only one trimmer, then make it this one.
- Negative Trimmers - decrease attack speed but increase the bots ability to evade. A QL95 pos-agg trimmer changes the position of the pet's invisible aggressive-defensive slider to 95% aggressive. Very handy in certain circumstances

### 10.2. Permanent effect trimmers

When used these trimmers have an enduring effect on a robot, so one only needs to use them once per bot. Positive and negative trimmers are permanent effect trimmers. Out of habit I always trim my bot after entering missions and dungeons.

### 10.3. Semi-permanent effect trimmers

When used these trimmers have a semi-permanent effect on the robot, so one needs to use them after zone changes, entering missions or dungeons.

- Trimmer - Divert Energy to Avoidance - Increases evades at the expense of maximum health.
- Trimmer - Divert Energy to Defense - Increases armor class at the expense of attack rating.

- Trimmer - Divert Energy to Hitpoints - Increases maximum health at the expense of it's defensive ability.
- Trimmer - Divert Energy to Offense - Increases the bots attack rating at the expense of armor class.

#### **10.4. Taunting trimmers**

This trimmer type is trade skilled. The trimmer adds a relatively small taunt value to your pet's hits. It's nearly useless - or else engineers might out-taunt Enforcers by spamming trimmers. It's been tried. Some people find the trimmer-spam animation strangely humorous.

#### **10.5. Android NCU Upgrades**

Android NCU Upgrades provide additional NCU space for your bot, 110 more NCU at QL200. For the most part these NCU upgrades are necessary at end game as our robots generally lack room for the full compliment of engineer buffs along with other professionals buffs. You may want a keep stack of these handy.

## **11.0 Implants**

The game developers assume players wear implants and balance player versus mob combat accordingly. Good implant sets make the difference between hating or loving your character, therefore understanding this aspect of the game is critical to your overall success.

Terminology like implant laddering or stepping needn't be confusing. It simply refers to a process of installing increasingly powerful faded, bright and shiny clusters in implants (typically stamina and agility based) in the chest, waist, legs and foot implant slots - thus enabling the installation of increasingly powerful implants in other more critical implant locations.

Jobe clusters up to QL300 are available for purchase from a vendor found at implant shop ICC. Some of these Jobe cluster versions may be found in mission crates or gray/yellow boxes. Jobe clusters are restricted to use in implants level 100+. Due to a quirk in game conventions, a precisely level 100 Jobe cluster implant is considered wearable by Title Level 3 (level 50+) characters. IE: A QL101 Jobe cluster implant use is restricted to use by characters level 100 and up. Something to consider when designing TL3/4 custom implants.

### **11.1. Pre-made shop implants**

Terminals in the Implant Shop sell profession specific implants up to quality level 125. Some of our pre-made engineer implants are less than optimal for our specific needs. Mix and match implants from various professional terminals for best results.

### **11.2. Learning implant design goals**

First things first; download an implant design app from AO Universe. Designing and installing implants is one of the more engaging parts of the game. It's worth remembering that implants of equal quality level, then: Increase from Shining = Increase from Bright + Increase from Faded clusters. Planning, time and patience are key traits here. The following list highlight primary design goals for engineers. If you have doubts about a given cluster slot ask /ooc for advice.

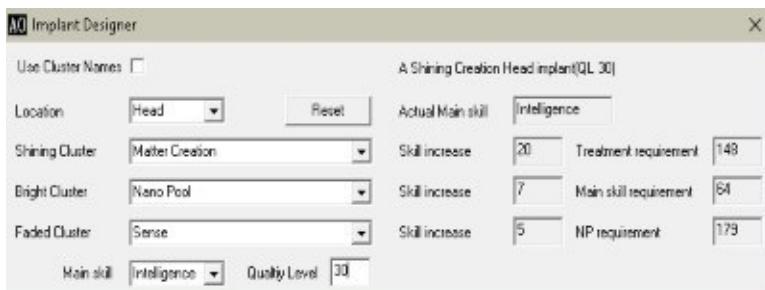
1. Matter Creation clusters - required to make your bot
2. Time and Space clusters - required to make your bot.
3. Matter Metamorphosis clusters - required for pet assist combat array buff.
4. Pistol Skill clusters - buff or field combat weapons.
5. Fling Shot clusters - special ranged attack skill.
6. Max Nano Pool clusters - executing a high QL pet nano may require a very large pool.
7. Max Health clusters - increase hit points.
8. Treatment clusters. boost when installing high quality level implants.
9. Computer Literacy. belts, ncu and treatment library.
10. Agility clusters - implanting this ability is more important than evade clusters at low levels.
11. Stamina clusters- implanting this ability is more important than evade clusters at low levels.

### 11.3. Setting implant ability requirement

It's possible to select the ability wear requirement on implants. You can see this happen with the following example while using an implant design tool.

Select a head implant in the implant design app then select the following clusters:

- Shining: Matter Creation
- Bright: Nano Pool
- Faded: Sense



Checking the results show it requires Intelligence to install. We want agility or stamina since both are far easier to boost with buffs.

Repeat this process but this time only with these two clusters:

- Shining: Matter Creation
- Faded: Sense



This time the resulting implant now requires a preferred ability: agility.

#### 11.4. Medical preparation procedures

The following is a brief description of the laddering process we use to wear new items and improve our pet. Watching a video primer will help bring clarity to this seemingly abstract process.

For this practical experiment we use sets of temporary implants with the goal of increasing or laddering abilities agility and stamina. We then install higher QL computer literacy implants to equip high quality ncu and belt, treatment library upgrades. The first set implant slots being; foot, leg, waist and chest raising agility and stamina in the process. We're laddering or stepping those two specific abilities. Now come the temp computer literacy head, eye and r-hand implants. Now install new belt, ncu and library. All done? Remove the computer literacy implants and install the permanent MC/TS/MM, pistol/fling and first aid - and sundry other implants and devices you've previously prepared to install. And so it goes. The higher the intended end product, the more complex the implant puzzle becomes. Because that's what this part of the game really is - a puzzle wanting to be solved using devices, implants, armor and your guile. Oh, and some math.

But first we need to collect and sort everything into backpacks. Yay?

##### Complete temporary sets:

- QL30-50 Computer literacy implants. Set to agi.
- QL30-50 AGI ability implants set to agi or stamina.
- QL30-50 STA ability implants set to agi or stamina.

- QL30-50 Treatment set. set to agi.
- QL30-50 Rifle or Aimed Shot for treatment and agi rifles.

### Economy implant build

- QL30-50 matter creation head implant. Set to agi.
- QL30-50 space-time eye and r-hand implant. Set to agi.
- QL30-50 Intelligence ear implant. Set to agi.
- QL30-50 matter metamorphosis chest and l-arm. Set to sta
- QL30-50 pistol and fling shot implants. Set to agi.
- QL30-50 first aid left-hand. Set to agi.

### Basic treatment gear

- Omni Med Suit. +78 treatment.
- Treatment Library. +treatment.
- QL22 OT-Windchaser Quartz rifle. +10 treatment.
- QL100 Stalker Helm. +5 treatment +5 Intelligence.
- QL70 Basic Biomech Armor Helmet. + treatment.
- QL70 Basic Biomech Armor Cloak. + treatment.
- QL1-200 Docaholic treatment rings (2)
- QL1-200 Ring of Presence (2)
- QL1-200 Intelligence pistols(2)

Okay, you've got backpacks full of loose clusters and empty implants. To conserve money use the 'economy build' implants above while leaving other slots empty, or fill the remainder with the implants listed in the following subsection. All sorted? Good. Now ask /OOC for assistance crafting whatever it is that needs to be done. Be patient. People idling near grid points tend to be /afk. Eat a snack. Check for help in ICC, Rome, Borealis and Old Athens.

### Treatment and other useful buffs

- Stationary Surgery Clinic; 100 treatment for a limited time period. It needed to be said.
- Doctor; Superior First Aid and Iron Circle.
- Soldier; Offensive Steamroller - high ncu +15 fling shot buff.
- Enforcer; Behemoth nano lines (Essence of Might etc.)
- Agent; Feline Grace.
- Fixer; ncu recompiler.

- All composite buffs.
- Gauntlet buff.
- Extruder Bar. Restricted to TL3+ characters.
- Bureaucrat - Improved Cut Red Tape.
- Tutoring device: Computer Literacy.
- QL1-200 Head Skinchip - Temperature Modification.

Is everything ready now? Get all the needed buffs while wearing the +ncu pistols and newcomer armor for those added few NCU point modifiers. Get the gauntlet buff. Self buff composites. Ask /ooc for select buffs like Feline Grace and Iron Circle etc. Now wear the Omni-med suit and (treatment rifle may or may not be needed and complicates things) the +5 intelligence pistols. Surgery clinic boost. Install the temp CL implants. Now install the QL60 4 slot or the special 5 slot belts from dungeons, new upgraded treatment library and QL50 chips. Wait, what? Still not enough computer literacy skill to wear the new belt and ncu memory? Jump to section 13.2 and 13.5 and read.

### **11.5. Suggested low level implant design**

The following implant set are for low level engineers. The set itself may require you to have agility and stamina raised to wear it, although alterations could be made to change those requirements. This is when your seemingly disparate efforts mesh into one coherent whole. Here's the plan. Upload a really good pet nano program. Equip combat pistols. wear better devices.

1. Head -
2. Chest -
3. Ear -
4. Eye -
5. Left Arm -
6. Right Arm -
7. Left Wrist -
8. Right Wrist -
9. Leg -
10. Left Hand -
11. Right Hand -
12. Waist -
13. Feet -

Implant Designer

Use Cluster Name:  A Shining Creation Head implant(QL 30)

Location: Head	Reset	Actual Main skill: Agility
Shining Cluster: Matter Creation		Skill increase: 20 Treatment requirement: 148
Bright Cluster:		Skill increase: Main skill requirement: 64
Faded Cluster: Sense		Skill increase: 5 NP requirement: 143
Wanted Main skill: Agility	Quality Level: 30	

Implant Designer

Use Cluster Name:  A Shining Endurance Chest implant(QL 30)

Location: Chest	Reset	Actual Main skill: Agility
Shining Cluster: Stamina		Skill increase: 12 Treatment requirement: 148
Bright Cluster:		Skill increase: Main skill requirement: 64
Faded Cluster: Max Nano		Skill increase: 26 NP requirement: 149
Wanted Main skill: Agility	Quality Level: 30	

Implant Designer

Use Cluster Name:  A Bright Sneaking Ear implant(QL 30)

Location: Ear	Reset	Actual Main skill: Agility
Shining Cluster:		Skill increase: Treatment requirement: 148
Bright Cluster: Concealment		Skill increase: 12 Main skill requirement: 64
Faded Cluster: Intelligence		Skill increase: 5 NP requirement: 134
Wanted Main skill: Agility	Quality Level: 30	

Implant Designer

Use Cluster Name:  A Shining Longrange Weaponry Eye implant(QL 30)

Location: Eye	Reset	Actual Main skill: Agility
Shining Cluster: Rule		Skill increase: 20 Treatment requirement: 148
Bright Cluster:		Skill increase: Main skill requirement: 64
Faded Cluster: Time & Space		Skill increase: 8 NP requirement: 143
Wanted Main skill: Agility	Quality Level: 30	

Implant Designer

Use Cluster Name:  A Bright Insuring Left Arm implant(QL 30)

Location: Left Arm	Reset	Actual Main skill: Agility
Shining Cluster:		Skill increase: Treatment requirement: 148
Bright Cluster: Break & Entry		Skill increase: 12 Main skill requirement: 64
Faded Cluster: Matter Metamorphosis		Skill increase: 8 NP requirement: 143
Wanted Main skill: Agility	Quality Level: 30	

Implant Designer

Use Cluster Names:  A Shining Gunslinger Right-Arm implant(QL 30)

Location: <input type="text" value="Right-Arm"/>	Reset	Actual Main skill: <input type="text" value="Agility"/>
Shining Cluster: <input type="text" value="Fling Shot"/>	Skill increase: <input type="text" value="20"/>	Treatment requirement: <input type="text" value="148"/>
Bright Cluster: <input type="text" value="Chemical AC"/>	Skill increase: <input type="text" value="48"/>	Main skill requirement: <input type="text" value="64"/>
Faded Cluster: <input type="text" value="Mechanical engineering"/>	Skill increase: <input type="text" value="8"/>	NP requirement: <input type="text" value="119"/>
Wanted Main skill: <input type="text" value="Agility"/>	Quality Level: <input type="text" value="30"/>	

Implant Designer

Use Cluster Names:  A Shining Akimbo Style Left/Wrist implant(QL 30)

Location: <input type="text" value="Left-Wrist"/>	Reset	Actual Main skill: <input type="text" value="Agility"/>
Shining Cluster: <input type="text" value="Multiple Ranged Weapons"/>	Skill increase: <input type="text" value="20"/>	Treatment requirement: <input type="text" value="148"/>
Bright Cluster: <input type="text" value="Run Speed"/>	Skill increase: <input type="text" value="12"/>	Main skill requirement: <input type="text" value="64"/>
Faded Cluster: <input type="text" value="Nano Resist"/>	Skill increase: <input type="text" value="8"/>	NP requirement: <input type="text" value="119"/>
Wanted Main skill: <input type="text" value="Agility"/>	Quality Level: <input type="text" value="30"/>	

Implant Designer

Use Cluster Names:  A Shining Small Arms Right/Wrist implant(QL 30)

Location: <input type="text" value="Right-Wrist"/>	Reset	Actual Main skill: <input type="text" value="Agility"/>
Shining Cluster: <input type="text" value="Pistol"/>	Skill increase: <input type="text" value="20"/>	Treatment requirement: <input type="text" value="148"/>
Bright Cluster: <input type="text" value="Multiple Ranged Weapons"/>	Skill increase: <input type="text" value="12"/>	Main skill requirement: <input type="text" value="64"/>
Faded Cluster: <input type="text" value="Fling Shot"/>	Skill increase: <input type="text" value="8"/>	NP requirement: <input type="text" value="119"/>
Wanted Main skill: <input type="text" value="Agility"/>	Quality Level: <input type="text" value="30"/>	

Implant Designer

Use Cluster Names:  A Shining Nimbleness Leg implant(QL 30)

Location: <input type="text" value="Leg"/>	Reset	Actual Main skill: <input type="text" value="Stamina"/>
Shining Cluster: <input type="text" value="Agility"/>	Skill increase: <input type="text" value="12"/>	Treatment requirement: <input type="text" value="148"/>
Bright Cluster: <input type="text" value="Stamina"/>	Skill increase: <input type="text" value="7"/>	Main skill requirement: <input type="text" value="64"/>
Faded Cluster: <input type="text" value="Max Health"/>	Skill increase: <input type="text" value="25"/>	NP requirement: <input type="text" value="149"/>
Wanted Main skill: <input type="text" value="Stamina"/>	Quality Level: <input type="text" value="30"/>	

Implant Designer

Use Cluster Names:  A Bright Disarming Left-Hand implant(QL 30)

Location: <input type="text" value="Left-Hand"/>	Reset	Actual Main skill: <input type="text" value="Agility"/>
Shining Cluster: <input type="text" value=""/>	Skill increase: <input type="text" value=""/>	Treatment requirement: <input type="text" value="148"/>
Bright Cluster: <input type="text" value="Trap Disarmament"/>	Skill increase: <input type="text" value="12"/>	Main skill requirement: <input type="text" value="64"/>
Faded Cluster: <input type="text" value="First Aid"/>	Skill increase: <input type="text" value="8"/>	NP requirement: <input type="text" value="107"/>
Wanted Main skill: <input type="text" value="Agility"/>	Quality Level: <input type="text" value="30"/>	

Implant Designer

Use Cluster Names:  A Shining Disarming Right-Hand implant(QL 30)

Location: <input type="text" value="Right-Hand"/>	Reset	Actual Main skill: <input type="text" value="Agility"/>
Shining Cluster: <input type="text" value="Trap Disarmament"/>	Skill increase: <input type="text" value="20"/>	Treatment requirement: <input type="text" value="148"/>
Bright Cluster: <input type="text" value="Time &amp; Space"/>	Skill increase: <input type="text" value="12"/>	Main skill requirement: <input type="text" value="64"/>
Faded Cluster: <input type="text" value="Treatment"/>	Skill increase: <input type="text" value="8"/>	NP requirement: <input type="text" value="143"/>
Wanted Main skill: <input type="text" value="Agility"/>	Quality Level: <input type="text" value="30"/>	

Implant Designer

Use Cluster Names:  A Shining Chemical Protection Waist implant(QL 30)

Location	Waist	Reset	Actual Main skill	Stamina		
Shining Cluster	Chemical AC		Skill increase	90	Treatment requirement	148
Bright Cluster			Skill increase		Main skill requirement	64
Faded Cluster	Agility		Skill increase	5	NP requirement	134
Wanted Main skill	Stamina	Quality Level	30			

Implant Designer

Use Cluster Names:  A Shining Evasion Feet implant(QL 30)

Location	Feet	Reset	Actual Main skill	Agility		
Shining Cluster	Evoke Close Combat		Skill increase	20	Treatment requirement	148
Bright Cluster	Agility		Skill increase	7	Main skill requirement	64
Faded Cluster	Duck, Explosions		Skill increase	8	NP requirement	134
Wanted Main skill	Agility	Quality Level	30			

## 12.0 Teaming, soloing and multiboxing

There are specific things everyone should do when first getting started in team adventuring. The first thing to do is turn off auto attack. You should always be the one to decide when and at which monster you'll be attacking with your pet or pistols. The second is to designate one person in your team to assist when attacking mobs. We'll call that player the main tank - regardless of their actual profession. Once the main tank is selected make a line command macro for your hotbar as follows:

- /macro MTassist /assist (main tank player name)

Clicking the macro will place the main tank's combat target in your attack window. Doing so will also allow crowd control professions to calm or root additional mobs and stop them from assisting your primary combat target (and beating on you or your healers.) You will now want to make another macro so your bot will attack the monster currently in your assisted combat target window:

- /macro MTattack /pet attack %t

Keep your robotic pet on a short leash and under control. Reset its hate list by ordering it to:

- /pet wait

then

- /pet follow

### 12.1. Pets in combat

Engineer robots are, in effect, controlled mobs. This means they are subject to many of the rules and behavioral patterns that govern regular mobs. So like a mob your pet will have a Hate List. Mobs or players might be added to the hate list because:

- Old command - you ordered your bot to attack a mob by mistake or

changed your mind.

- Mob / player attacks bot - Something or someone attacked your bot.
- Mob / player attacks you - Something or someone attacked you.

Whichever state the bot is in it will build a hate list, even in wait mode it will add attackers to its list. If the bot is in Guard mode it will immediately engage the first attacker, in a team situation that's any mob that attacks any member of the team. If in attack mode it will engage the attacker as soon as it's current target is finished. In any other mode it will not act on this list until you give it a command. Then, depending on the command, it will either start to work through the hate list or disregard it entirely. Pet owners can temporarily clear the pet's hate list at any time by issuing the command "/pet wait".

## 12.2. Solo play

Froob engineers are a excellent solo profession - our pets can both absorb and inflict lots of combat damage. At very low levels the bot won't be able to effectively taunt mobs, so try to not to be in line of sight of any monster. Yes, that means hiding behind doors and next to mission walls. Not especially courageous behavior on our part, but it is safe and effective. This especially applies when healing the bot. If you remain out of Line of Sight (of the mob) and heal the bot it's unlikely that the mob will switch its attention to you. If your character gets stuck in the game geometry then sit if possible and use the command line /stuck.

One of the hardest things to do is learning to separate or split mobs. If two mobs are in the same room then attacking one will immediately draw the attention of the other. The preferred method to deal with this situation is by non-physical social body pulling. Try this method of pulling by waiting in the mobs line of sight until it flashes up an 'attacked by' text on your combat log. Better yet, use a QL1 Aggression Enhancer, it's foolproof. If the mob you're pulling takes any damage in the process it will then be noticed by the second mob and the effort is wasted. See also section 6.1 about pulling or splitting mobs using nano formula Enmity.

As you level up and your skills increase you will want to get the engineer Blind line of nano formula. Engineer blinds are the most powerful in the game, they reduce the attack rating of the mob to such an extent that they can be incapable of hitting you. All our blinds are in the form of a 20 second area pulse which

effects all hostile targets in the area. However, if the mob takes even a single point of damage the blind will be broken and the mob back up to full power. Our blinds are short range and contain a very limited taunt. Along with these is a snare line that pulses out from the bot every 30 seconds. Our snare will also break calms which tends to get teammates killed. The snare includes a very weak taunt component, which slightly improves the chances of the mob attacking our robotic pet.

### **12.3. Multi-boxing and buff characters**

Multiboxing refers to playing as multiple separate characters concurrently in AO. This can either be achieved by using multiple separate machines to run the game or by running multiple separate instances of the game on one computer. Variations on the term are common. Often, the number of accounts used is reflected in the term used: dual-boxing or two-boxing for two characters, three-boxing for three etc. Multiboxing is done for several reasons. Sometimes it is a matter of convenience, having permanent access to a character that can buff, heal or transport the team. Often, heavy use is made of the macros built into the game's default interface. This allows more complex instructions to be issued with a single key stroke. Examples include targeting a certain character and healing them, assisting the main tank in combat or calming and rooting monsters.

Multiboxing is allowed by Anarchy Online developers as long as all characters are actively controlled by the player directly. Anarchy Online developers only allow a single character per account to be logged in at once, so multi-boxers need a separate account for each character they want to play simultaneously. Unattended game play using third party apps will get you banned.

Dungeon behavior. Play nice. Don't camp steal. Don't pull everything from someone that is obviously grinding in an area. If someone is camping to try to get their last few items off a boss, offer help or camp the pocket team and join the fray with a toon you want to use to contribute to the fun of others. Participate! Failing all of the above, try to get into another instance (GS) so your activity doesn't affect those around you. Can't find a dungeon without tons of people running all over? Go do a mission. Multi-boxing breaks PVP. Please don't multibox and PVP.

## 13.0 Intro to crafting

Engineers and Traders excel in this field, but it's not an easy path. For a start there's a lot to learn, every trade skill process has different rules and tools. But most importantly this will absorb much of your free IP all the way up into Title Level 6. As a result of the IP sink involved in trade skills it's next to impossible to keep more than a couple of the skills current before level 130.

### 13.1. Non-weapon skill modifiers

- QL1-200 Head Skinchip - ICC Engineer. Dyna and team mission boss loot. QL1-200
- Head Skinchip - Temperature Modification. Dyna and team mission boss loot. QL1-200
- Tutoring Device - Computer Literacy and all other trade skills. Shop terminals, mission loot.
- Stalker Helm. +5 Int and +5 treatment.
- Extruder Bar. trickles +2. Made by Traders. restricted to level 50+. Tastes like cardboard.
- Repairman's Hat. Restricted to level 20+. CompLit +5 and +4 WS QFT ME EE. Zoftig Blimp.
- Focus Funneling devices; love, hate and vanilla. Somewhat rare and not low level.
- T.I.M. trade skill HUD device.
- All Match Bow-tie.
- Ring of Presence.

### 13.2. Trade skill processes

I farmed or bought the order forms necessary to craft the Briefcase of Holding and crafted and sold many dozens of those things (mobile bureaucrat bank access.) Point being, find your sales niche!

- Implants (req. NP) - A popular trade skill. 5 NP per QL for most ordinary implants.
- Jobe Implants. Sold many Jobe Experience and AddAllDef implant sets QL100 and up.

- Spirit Infused Yutto NCU. I sold the CL skill 750(?) versions within seconds of posting them on shopping. Problem was getting people to buy the normal versions for me from vendors in Shadowlands. Huge profits on these things. Need a special tool.
- Implant Disassembly. Requires B&E/NP. Treatment Lib (req. pharma-tech). Sold many dozens of the QL200's.
- Personalized Robot Brain - sold these once in a while.
- Viral Triumvirate Egg (req. ME/EE) - 1000 ME for this process. Always strong sales.
- Metallic Mantis & Bronto Armor (req. chem) - req's MRR Shape Soft Armor.
- Carbonum & Junk Metal Armor (req. ME/EE/chem) - similar processes. nice color graphic on junk armor.
- Nano Crystals (req. NP/CL/EE/QFT/ME). Only made crystals after looting rare or saleble discs.
- Soft Pepper Pistols. I crafted and sold many QL51 and QL101's. Higher QL's sold poorly, if ever.
- Blood plasma. Convert monster parts to blood plasma to craft white health kits or sell to shops for fast cash.
- Jewelery. Convert junk rings to ingots. Cut raw gems.

### 13.3. Monster parts and jewelery

With the use of a bio-commutator tool monster parts can be converted to blood plasma. That blood plasma sells for substantially more money to shop terminals than the unprocessed monster parts. You can also make your own health charger kits using blood plasma from those same monster parts - the old school white kits usable during combat (not battle kits!) Converting monster parts to plasma requires skill in Pharma Tech. Neutral engineers can get a task from Aleksei Innokenti in Borealis to deliver a QL30 Bio Communiton which just happens to also be the completion reward. Easy peasy.

Process silver and gold rings into ingots. Save ingots of various quality levels for crafting use and sell off the rest to shop terminals. Player crafted Shadowland gem rings are highly valuable to Froob engineers. Buy cut or uncut shadowlands gems from subscribers whenever possible and craft your own filigree rings. Check AO Universe guides for what you need and how to do it. Be cautious when spending valuable IP on trade skills at low levels!

### **13.4. MRR trade skill tools**

There are some items in the game that can only be found in a limited number of places or player levels.

Robot Instruction Discs - QL10 Crushing, QL20 Thrusting and QL30 Slashing. Thrusting being the most useful of the three types (improved tango dirks). I sold many Crushing types to trade skill tool collectors. I farmed a mob that spawns in greater tir county that frequently dropped the crushing disc. Convert the disc to PPPE form previous to offering it on 1-50 shopping. Thrusting type is coveted and far more valuable than all the others. I rarely sold ITD's QL1-200 despite posting them on shopping often.

Shape Armor - Hard and Soft discs. Both are team or dyna boss loot from level 60 bosses. I had backpacks full of level 30-70 Bronto armor and never sold one piece of it. Mantis Armor sales were spotty, but ok at times. Crafted many sets of Carbonum for free (user supplied plates.)

### **13.5. Tutoring and why it's important**

Tutoring is required to be able to use Tutoring Devices, these are items in the game that allow you to temporarily increase one of your own trade skills. The devices start at QL1 and go all the way up to 200. Providing an increase of up to 50 points. That is an increase of 0.25 skill per quality level, but we don't work in bits of numbers, only full numbers. So QL1-7 provide a skill increase of 1 point, QL8 - 12 an increase of 2 points, up until the increase of 50 points with a QL200 device.

## 14.0 The Slider

The best early game advice is to position the slider at about 75%-80% aggressive. Maintain ranged init, evade close combat and dodge ranged IP investment at about 75% of maximum - that's probably a fair balance between slider and skills. Nano init simply isn't worth the IP cost at this time.

### 14.1. Ranged initiative

A/R = Attack and Recharge speed. The speed at which fire a weapon or execute a nano and the speed at which the skill recharges to a ready-state. These stock values are listed in the descriptions of the weapons and nanos.

1. 100% = full agg; the agg/def slider set to 100% aggressive.
2. 0% = full def; the agg/def slider set to 100% defensive.
3. Init = Initiatives; partly determines your weapon or nano speed ratios.

### 14.2. Speed table using a damage calculator

With 0 Init and:

- 100% A/R is 0.25/0.25 faster than speed in stock Weapon Description
- 82.5% A/R speed equals stock Weapon Description
- 75% A/R is 0.25/0.25 sec slower.
- 62.5% A/R is 0.5/0.5 sec slower.
- 50% A/R is 0.75/0.75 sec slower
- 37.5% A/R is 1.0/1.0 sec slower
- 25% A/R is 1.25/1.25 sec slower
- 12.5% A/R is 1.5/1.5 sec slower
- 0% A/R is 1.75/1.75 sec slower

Every 150 points to Ranged initiative increases weapon Attack speed by 0.25 and Recharge speed 0.5 seconds.

### 14.3. Time trial

Example weapon has 2.50/2.50 A/R

- With 150 Init and 100% A/R speed is 2.00/1.75 ; you attack 2.6 times in 10 sec.
- With 300 Init and 100% A/R speed is 1.75/1.25 ; you attack 3.3 times in 10 sec.
- With 450 Init and 100% A/R speed is 1.50/1.00 ; you attack 4.0 times in 10 sec.
- With 600 Init and 100% A/R speed is 1.25/1.00 ; you attack 4.4 times in 10 sec.
- With 750 Init and 100% A/R speed is 1.00/1.00 ; you attack 5.0 times in 10 sec.

#### **14.4. Nano Initiative rules**

There are three levels in Agg/Def when we talk about nano speed.

- Nano Initiative only speeds up Attack time.
- Recharge is always what it says in the Nano Description.
- Nano Attack speed cap is 0.0 (insta cast)

#### **14.5. Nano speed**

- With 0 Init and 100%, Attack is 1.5 sec faster
- With 0 Init and 99-1%, Attack is 0.5 sec faster
- With 0 Init and 0%, Attack is 0.5 sec slower

Every 200 points in Nano Init. will reduce attack speed by 1.0s. A trial nano of 5.0/3.0 A/R:

- With 200 Init and 100% A/R, speed is 2.5/3.0
- With 400 Init and 100% A/R, speed is 1.5/3.0

#### **14.6. Initiatives with slider**

Every 100 points to Initiatives give 10% change to move the agg/def slider to defensive without attack speed reduction.

Trial weapon with A/R of 2.5/2.5 and:

- With 750 Init and 100% A/R, speed is 1.0/1.0
- With 850 Init and 90% A/R, speed is 1.0/1.0 you're hit less often.
- With 950 Init and 80% A/R, speed is 1.0/1.0 you're hit much less often.

Evades and Nano Resist skills also determine avoidance and damage ratios. The more one moves the agg/def slider to defensive, the more our evades and nano resist skill directly benefit us. A trial weapon with a speed of 1.25/1.25 and trial nano with 2.0/1.0: With 1000 ranged Init, 200 Nano Init and 25% Agg/Def slider you then have 1.0/1.0 A/R with ranged weapon attack and 0.5/1.0 A/R instant nano attack.

## 15.0 Whompah travel



Free mass transit. Apparently named after the sound the magical whompah machinery generate as travelers step into the portal. Though the sound seems more akin to modern electric fly traps. BuuuzZZzzapp. Happy trails, Omni citizens and Clan plebs!

### 15.1. Neutral Network

1. Newland: Whompas to the ICC HQ, Borealis and Stolt's newland desert outpost.
2. ICC HQ: Newland, Omni-1 Trade, Tir.
3. Stolt's: Whompas to Newland and Hope
4. Hope: Whompas to Stolt's, Last Ditch and Sabulum.
5. Sabulum: Hope. Last Ditch: Whompas to Hope and Borealis
6. Borealis: Whompas to Newland and Last Ditch

### 15.2. Clan Network

1. Tir: Whompas to the ICC HQ, Old Athen and Varmint Woods
2. Old Athen: Whompas to Tir, Wailing Wastes and Bliss
3. Bliss: Whompas to north Broken Shores, Old Athen, and Avalon
4. Broken Shores - north: Whompas to Wine and Bliss
5. Wine: Whompas to north Broken Shores and Varmint Woods
6. Varmint Woods: Whompas to Wine, Tir and Wailing Wastes
7. Wailing Wastes: Whompas to Varmint Woods and Avalon

8. Avalon: Whompas to Wailing Wastes and Bliss.

### **15.3. Omni-Tek Network**

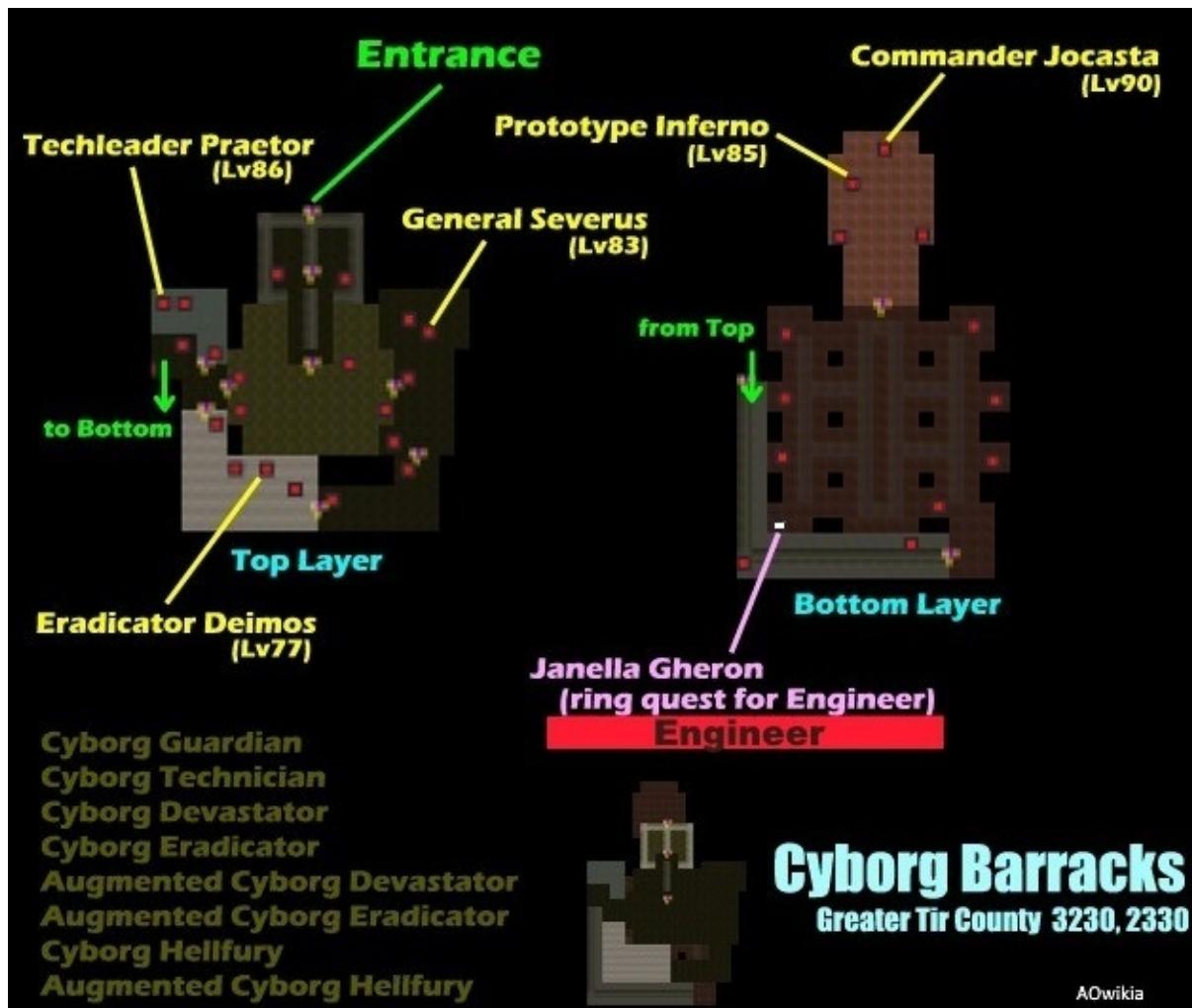
1. 4-holes: Whompas to east Broken Shores, 20k and 2H0
2. 2H0: Whompas to 4-holes, 10-3, Foreman's
3. Foreman's: 2HO, east Broken Shores
4. Mutant Domain: 2HO, Omni Entertainment
5. 10-3: Whompas to 2H0, 20K, Mutant Domain, Galway Castle
6. 20k: Whompas to 4-Holes, 10-3, Omni Entertainment and Klatran
7. Southern Foul Hills: Klatran to 20K.
8. Omni Entertainment: Whompas to 20K, Omni Trade, and Rome
9. Omni-Trade: Whompas to Galway Castle, Omni Entertainment and ICC HQ
10. Galway Castle: Whompas to 10-3, Omni Trade and Rome
11. Rome: Whompas to Galway Castle, Omni Entertainment and east Broken Shores
12. Broken Shores - east: Whompas to Rome and 4-Holes
13. Omni-1 east: 20K, Mutant Domain, Omni-1 and Rome

## **16.0 Maps and images**

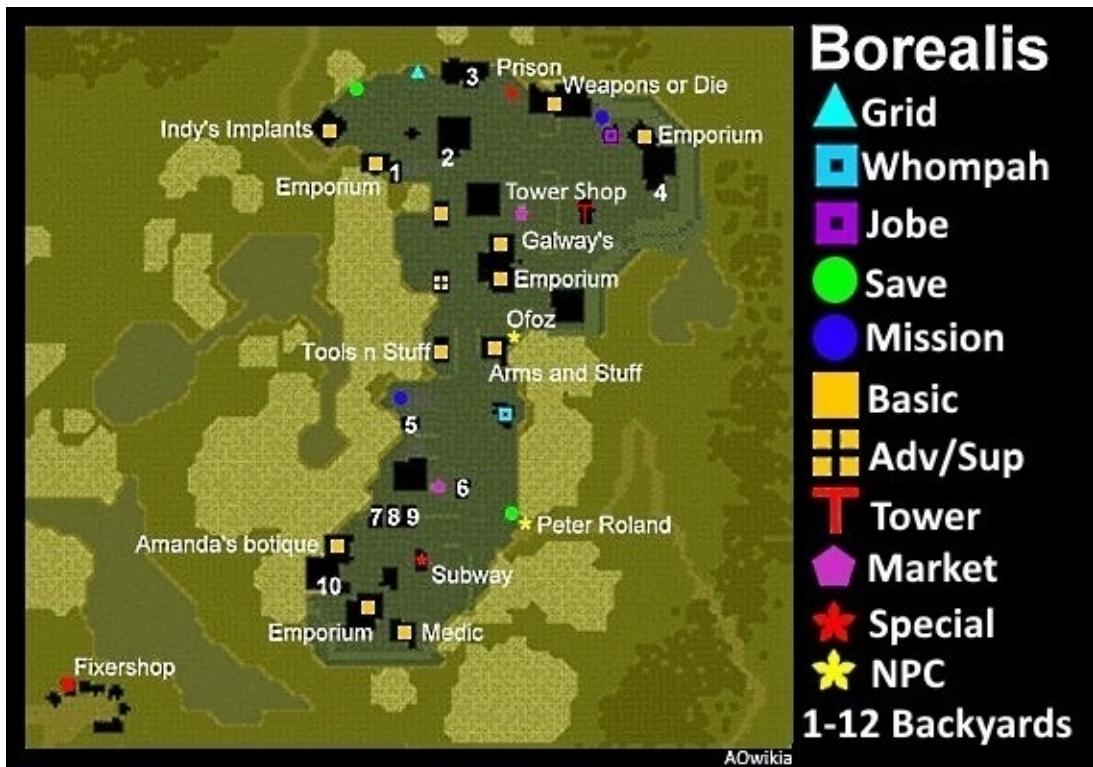
### **16.1. Arete map**



## 16.2. Cyborg Barracks



### 16.3. Borealis tower shop



#### 16.4. Zoftig Blimp



#### 16.5. Newland City



### 16.6. Leet vermin

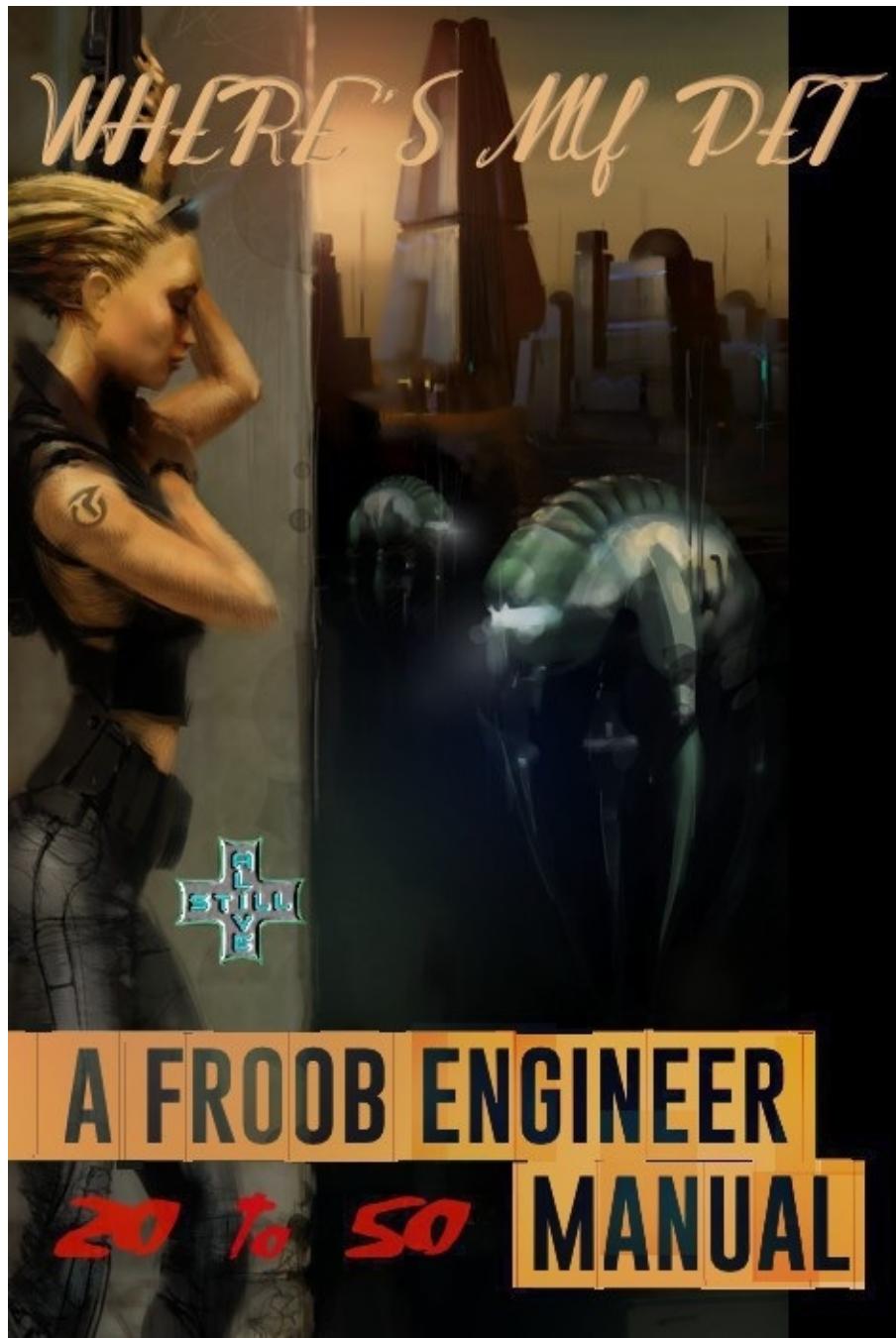


### 16.7. Eyemutant



Look for a level 20ish eyemutant dyna in Newland Desert near location 2180x2740. One of the better places for L30-50 eyemutants is the Eyecamp just a stones throw north from the 20k Outpost in Pleasant Meadows. An excellent location to hunt Level 70-80 eyemutants is around the Terraforming Plant in northern Avalon. Both looted as a finished weapon or an eye needing to be crafted. You're as likely to loot a finished laser version as looting an unfinished eye. The SOL K Mini is a better weapon, but the eye-laser is fun and different.

### **16.8. Cover alternate**



16.8.1. Alternate cover graphic

